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```
=> s ((lithium(3a)tantalate) or lita03)
      316104 LITHIUM
      365 LITHIUMS
      316230 LITHIUM
            (LITHIUM OR LITHIUMS)
      9572 TANTALATE
      1055 TANTALATES
      9940 TANTALATE
            (TANTALATE OR TANTALATES)
      3918 LITHIUM(3A) TANTALATE
      1 LITA03
L1      3918 ((LITHIUM(3A) TANTALATE) OR LITA03)
```

```
=> s l1 and stoichiometric
      72115 STOICHIOMETRIC
      51 STOICHIOMETRICS
      72156 STOICHIOMETRIC
            (STOICHIOMETRIC OR STOICHIOMETRICS)
L2      207 L1 AND STOICHIOMETRIC
```

```
=> s l2 and ((two(4w) (wavelength or color or photon)) or nonvolatile)
      2288919 TWO
      41 TWOS
      2288951 TWO
            (TWO OR TWOS)
      195537 WAVELENGTH
      67869 WAVELENGTHS
      243273 WAVELENGTH
            (WAVELENGTH OR WAVELENGTHS)
      426457 COLOR
      46190 COLORS
      449669 COLOR
            (COLOR OR COLORS)
      134527 PHOTON
      46798 PHOTONS
      159113 PHOTON
            (PHOTON OR PHOTONS)
      31358 TWO(4W) (WAVELENGTH OR COLOR OR PHOTON)
      22975 NONVOLATILE
      1036 NONVOLATILES
      23875 NONVOLATILE
            (NONVOLATILE OR NONVOLATILES)
```

L3 8 L2 AND ((TWO(4W) (WAVELENGTH OR COLOR OR PHOTON)) OR NONVOLATILE)

=> s l2 and (((two or 2) (5a) (wavelength or color or photon)) or nonvolatile)

2288919 TWO

41 TWOS

2288951 TWO

(TWO OR TWOS)

8964522 2

195537 WAVELENGTH

67869 WAVELENGTHS

243273 WAVELENGTH

(WAVELENGTH OR WAVELENGTHS)

426457 COLOR

46190 COLORS

449669 COLOR

(COLOR OR COLORS)

134527 PHOTON

46798 PHOTONS

159113 PHOTON

(PHOTON OR PHOTONS)

81933 (TWO OR 2) (5A) (WAVELENGTH OR COLOR OR PHOTON)

22975 NONVOLATILE

1036 NONVOLATILES

23875 NONVOLATILE

(NONVOLATILE OR NONVOLATILES)

L4 10 L2 AND (((TWO OR 2) (5A) (WAVELENGTH OR COLOR OR PHOTON)) OR NONVOLATILE)

=> d all 1-10

L4 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2006:1218285 CAPLUS <<LOGINID::20061206>>

ED Entered STN: 21 Nov 2006

TI Monolithic red-green-blue laser light source based on cascaded wavelength conversion in periodically poled ***stoichiometric*** ***lithium*** ***tantalate***

AU Gao, Z. D.; Zhu, S. N.; Tu, Shih-Yu; Kung, A. H.

CS National Laboratory of Solid State Microstructures, Nanjing University, Nanjing, 210093, Peop. Rep. China

SO Applied Physics Letters (2006), 89(18), 181101/1-181101/3

CODEN: APPLAB; ISSN: 0003-6951

PB American Institute of Physics

DT Journal

LA English

CC 73 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

AB A compact, pulsed, red, green, and blue laser source based on cascaded quasi-phase-matched ***wavelength*** conversion in ***two*** periodic superlattices set in tandem in a single ***stoichiometric*** LiTaO3 crystal and pumped by a laser source at 532 nm is reported. The white light equiv. flux obtained was 80 lm per 1 W input with a green to white light power conversion efficiency of .degree.30%. Unity power conversion is feasible in this monolithic approach.

L4 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2006:62509 CAPLUS <<LOGINID::20061206>>

DN 144:400496

ED Entered STN: 23 Jan 2006

TI Optical-damage-free guided second-harmonic generation in 1% MgO-doped ***stoichiometric*** ***lithium*** ***tantalate***

AU Lobino, M.; Marangoni, M.; Ramponi, R.; Cianci, E.; Foglietti, V.; Takekawa, S.; Nakamura, M.; Kitamura, K.

CS Dipartimento di Fisica-Politecnico INFM, Istituto di Fotonica e Nanotecnologie-CNR, Milan, 20133, Italy

SO Optics Letters (2006), 31(1), 83-85

CODEN: OPLEDP; ISSN: 0146-9592

PB Optical Society of America

DT Journal

LA English

CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

AB Room-temp. cw second-harmonic generation from telecom ***wavelengths***, with 30% W-1 cm- ***2*** efficiency and second-harmonic power levels

up to 41 mW, was achieved in buried waveguides fabricated by reverse-proton exchange in 1% MgO-doped ***stoichiometric***
 lithium ***tantalate*** without any evidence of optical damage. The technol. proves suitable for the realization of efficient nonlinear frequency converters and all-optical devices.

ST magnesium oxide doped ***stoichiometric*** ***lithium***
 tantalate second harmonic generation

IT Optical waveguides
 Second-harmonic generation
 (optical-damage-free guided second-harmonic generation in 1% magnesium oxide-doped ***stoichiometric*** ***lithium***
 tantalate)

IT 1309-48-4, Magnesium oxide, uses
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (optical-damage-free guided second-harmonic generation in 1% magnesium oxide-doped ***stoichiometric*** ***lithium***
 tantalate)

IT 12031-66-2, ***Lithium*** ***tantalate***
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
 (optical-damage-free guided second-harmonic generation in 1% magnesium oxide-doped ***stoichiometric*** ***lithium***
 tantalate)

RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Agate, B; Opt Lett 2003, V28, P1963 CAPLUS
- (2) Bortz, M; Opt Lett 1991, V16, P1844 CAPLUS
- (3) Chou, M; IEEE Photon Technol Lett 1999, V11, P653
- (4) El Hadi, K; Opt Lett 1995, V20, P1698
- (5) Fouchet, S; J Lightwave Technol 1987, V5, P700
- (6) Furukawa, Y; Appl Phys Lett 2000, V77, P2494 CAPLUS
- (7) Kitamura, K; Appl Phys Lett 1998, V73, P3073 CAPLUS
- (8) Klein, M; Opt Lett 1999, V24, P1142
- (9) Kokanyan, E; Appl Phys Lett 2004, V84, P1880 CAPLUS
- (10) Marangoni, M; Opt Express 2004, V12, P2754 CAPLUS
- (11) Parameswaran, K; Opt Lett 2002, V27, P179 CAPLUS
- (12) Pavel, N; The CLEO/Europe Conference 2003
- (13) Pioger, P; Opt Lett 2002, V27, P2182 CAPLUS
- (14) Ross, G; Opt Lett 1998, V23, P171 CAPLUS
- (15) Shoji, I; J Opt Soc Am B 1997, V14, P2268 CAPLUS
- (16) Yu, N; Ion Exchange in Single Crystals for Integrated Optics and Optoelectronics 1999

L4 ANSWER 3 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2005:1114096 CAPLUS <<LOGINID::20061206>>

DN 145:113254

ED Entered STN: 18 Oct 2005

TI Long lifetime of ***two*** - ***color*** ***nonvolatile***
 holograms in near- ***stoichiometric*** ***lithium***
 tantalate crystals

AU Kitamura, Kenji; Liu, Youwen; Takekawa, Shunji; Hatano, Hideki; Furukawa, Yasunori

CS Adv. Mater. Lab., National Institute for Materials Science, 1-1 Namiki, Tsukuba, Ibaraki, 305-0044, Japan

SO Proceedings of SPIE-The International Society for Optical Engineering (2004), 5362 (Advanced Optical and Quantum Memories and Computing), 107-110
 CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal

LA English

CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

AB ***Two*** - ***color*** holog. is an effective soln. to the volatile readout problem in vol. holog. data storage based on photorefractive materials. Popular materials for ***two*** - ***color*** holog. are reduced doped and nondoped near- ***stoichiometric*** lithium niobate crystals. However, the lifetime at room temp. is from several weeks to several months depending on the redn. state of the material. Moreover, reductive treatment will degrade the nonvolatility of ***two*** - ***color*** holograms. The important issue for ***two*** -

color holog. is how to increase the lifetime. In this contribution, lifetimes of ***two*** - ***color***

nonvolatile holograms recorded in as-grown near-***stoichiometric*** ***lithium*** niobate and ***tantanlate*** crystals were compared by extrapolating the high-temp. data. The dark-decay time consts. obey an Arrhenius dependence on abs. temp. and yield activity energy of 1.06 eV around in all measured crystals. Lifetimes of holograms in nondoped and slightly doped crystals depend on the proton concn. Lifetimes of hologram in ***lithium*** ***tantanlate*** are one order of magnitude longer than those in lithium niobate at the same proton concn. The lifetime of ***two*** - ***color*** holograms in lithium tantanlate is longer than 20 years.

ST long lifetime color ***nonvolatile*** holograms near ***stoichiometric*** ***lithium*** ***tantanlate***

IT Holographic memory devices
Holographic recording materials
Photorefractive materials
(long lifetime of ***two*** - ***color*** ***nonvolatile*** holograms in near- ***stoichiometric*** ***lithium*** ***tantanlate*** crystals)

IT 12031-66-2, ***Lithium*** ***tantanlate*** (LiTaO3)
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(long lifetime of ***two*** - ***color*** ***nonvolatile*** holograms in near- ***stoichiometric*** ***lithium*** ***tantanlate*** crystals)

IT 14280-30-9, Hydroxide, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(long lifetime of ***two*** - ***color*** ***nonvolatile*** holograms in near- ***stoichiometric*** ***lithium*** ***tantanlate*** crystals)

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Ahlfeldt, H; J Appl Phys 1994, V75, P717
- (2) Coufal, H; Holographic Data Storage 2000
- (3) Guenther, H; Appl Opt 1998, V37, P7611 CAPLUS
- (4) Guter, P; Topics in Applied Physics 1988, V61
- (5) Herrington, J; Solid State Commun 1973, V12, P351 CAPLUS
- (6) Hesselink, L; Science 1998, V282, P1089 CAPLUS
- (7) Kitamura, K; J Cryst Growth 1992, V116, P327 CAPLUS
- (8) Kratzig, E; Appl Phys 1978, V15, P133
- (9) Liu, Y; Appl Phys Lett 2003, V82, P4218 CAPLUS
- (10) Nakamura, M; J Cryst Growth 2002, V245, P267 CAPLUS
- (11) Schirmer, O; J Phys Chem Solids 1991, V52, P185 CAPLUS
- (12) Tsuya, H; J Appl Phys 1975, V46, P4323 CAPLUS
- (13) von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS
- (14) von der Linde, D; J Appl Phys 1976, V47, P217 CAPLUS
- (15) Yang, Y; Appl Phys Lett 2001, V78, P4076 CAPLUS

L4 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2005:119291 CAPLUS <<LOGINID::20061206>>

DN 144:180652

ED Entered STN: 11 Feb 2005

TI Investigation on dark decay of ***two*** - ***color*** holograms in near- ***stoichiometric*** LiNbO3 and LiTaO3

AU Liu, Youwen; Kitamura, Kenji; Takekawa, Shunji; Ravi, Ganesan; Nakamura, Masaru; Hatano, Hideki

CS Advanced Materials Laboratory, National Institute for Materials Science, 1-1 Namiki, Tsukuba, Ibaraki, 305-0044, Japan

SO Proceedings of SPIE-The International Society for Optical Engineering (2005), 5646(Nonlinear Optical Phenomena and Applications), 623-627

CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal

LA English

CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

AB We have investigated the dark decay mechanism by measuring dark decay time consts. of ***two*** - ***color*** holograms recorded in undoped and slightly doped near- ***stoichiometric*** LiNbO3 and LiTaO3 crystals in the temp. range from 50 to 200.degree.C. All the samples in this work obey an Arrhenius-type dependence of time const. on abs. temp., and yield

nearly same activation energies of 1.08 eV. The results show that proton compensation mechanism dominated the dark decay process. Lifetimes of holograms at room temp. in LiTaO3 are one order of magnitude longer than that in LiNbO3 if having the same proton concn.

ST dark decay ***two*** ***color*** holograms lithium niobium oxide tantalum

IT Stretching vibration
(hydroxyl, proton compensation; study of dark decay of ***two*** - ***color*** holograms in near- ***stoichiometric*** lithium niobium oxide and lithium tantalum oxide)

IT Diffusion
(proton; study of dark decay of ***two*** - ***color*** holograms in near- ***stoichiometric*** lithium niobium oxide and lithium tantalum oxide)

IT Activation energy
Boltzmann equation
Curie temperature (ferroelectric)
Czochralski crystal growth
Holographic recording materials
Photorefractive materials
Proton transfer
(study of dark decay of ***two*** - ***color*** holograms in near- ***stoichiometric*** lithium niobium oxide and lithium tantalum oxide)

IT Holography
(***two*** - ***color*** ; study of dark decay of ***two*** - ***color*** holograms in near- ***stoichiometric*** lithium niobium oxide and lithium tantalum oxide)

IT 7439-96-5, Manganese, uses 7440-27-9, Terbium, uses
RL: MOA (Modifier or additive use); USES (Uses)
(dopant; study of dark decay of ***two*** - ***color*** holograms in near- ***stoichiometric*** lithium niobium oxide and lithium tantalum oxide)

IT 3352-57-6, Hydroxyl, properties 12586-59-3, Proton
RL: PRP (Properties)
(proton compensation; study of dark decay of ***two*** - ***color*** holograms in near- ***stoichiometric*** lithium niobium oxide and lithium tantalum oxide)

IT 12031-63-9, Lithium niobate (LiNbO3) 12031-66-2, ***Lithium***
tantalate (LiTaO3)
RL: TEM (Technical or engineered material use); USES (Uses)
(study of dark decay of ***two*** - ***color*** holograms in near- ***stoichiometric*** lithium niobium oxide and lithium tantalum oxide)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Bai, Y; Phys Rev Lett 1997, V78, P2944 CAPLUS
- (2) Coufal, H; Holographic Data Storage 2000
- (3) Guenther, H; Appl Opt 1998, V37, P7611 CAPLUS
- (4) Herrington, J; Solid State Commun 1973, V12, P351 CAPLUS
- (5) Hesselink, L; Science 1998, V282, P1089 CAPLUS
- (6) Kitamura, K; J Cryst Growth 1992, V116, P327 CAPLUS
- (7) Kitamura, K; Photorefractive Effects, Materials, and Devices, OSA Proceedings Series 2003, V87, P666 CAPLUS
- (8) Klauer, S; Phys Rev B 1992, V45, P2786 CAPLUS
- (9) Kovacs, L; J Phys Chem Solids 1991, V52, P797 CAPLUS
- (10) Kovacs, L; Phys Status Solidi A 1990, V120, P97 CAPLUS
- (11) Lee, M; Appl Phys Lett 2000, V76, P1653 CAPLUS
- (12) Liu, Y; Appl Phys Lett 2002, V81, P2686 CAPLUS
- (13) Liu, Y; Appl Phys Lett 2003, V82, P4218 CAPLUS
- (14) Mandula, G; International Conference on Solid State Crystals 2000: Growth, Characterization, and Applications of Single Crystals, Proc SPIE 2001, V4412, P226 CAPLUS
- (15) Matthews, P; J Appl Phys 1992, V72, P2562 CAPLUS
- (16) Staebler, D; Ferroelectrics 1972, V3, P107 CAPLUS
- (17) Von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS
- (18) Vormann, H; Solid State Commun 1981, V40, P543 CAPLUS
- (19) Yang, Y; Appl Phys Lett 2001, V78, P4076 CAPLUS
- (20) Yang, Y; J Opt Soc Am B 2003, V20, P1491 CAPLUS

DN 143:275499
 ED Entered STN: 03 Dec 2004
 TI Comparison of ***two*** - ***color*** hologram lifetimes of near-
 stoichiometric ***lithium*** niobate and of ***tantalate***
 crystals
 AU Liu, Youwen; Kitamura, Kenji; Takekawa, Shunji; Ravi, Ganesan; Nakamura,
 Masaru; Furukawa, Yasunori; Hatano, Hideki
 CS Advanced Materials Laboratory, National Institute for Materials Science,
 Tsukuba, Ibaraki, 305-0044, Japan
 SO Applied Optics (2004), 43(31), 5778-5783
 CODEN: APOPAI; ISSN: 0003-6935
 PB Optical Society of America
 DT Journal
 LA English
 CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)
 AB Lifetimes of ***two*** - ***color*** ***nonvolatile*** holograms
 recorded in undoped- or in slightly doped near- ***stoichiometric***
 lithium niobate and ***tantalate*** crystals were measured and
 compared by extrapolation of the high-temp. data. A proton-compensation
 mechanism dominated the dark decay and yielded similar activation
 energies, of 1.05 and 1.10 eV, for near- ***stoichiometric***
 lithium niobate and ***tantalate*** crystals, resp. The
 lifetime of holograms in ***lithium*** ***tantalate*** was 1 order
 of magnitude longer than that in lithium niobate with the same proton
 concn., which was consistent with our theor. estn. The projected lifetime
 of ***two*** - ***color*** holograms in ***lithium***
 tantalate without observable OH- absorption is longer than 50
 years.
 ST hologram lifetime ***lithium*** niobate ***tantalate*** crystal
 IT Activation energy
 Curie temperature (ferromagnetic)
 Dopants
 Holographic recording materials
 IR spectra
 Stoichiometry
 UV and visible spectra
 (lifetimes of ***two*** - ***color*** holograms recorded in near-
 stoichiometric ***lithium*** niobate and ***lithium***
 tantalate crystals)
 IT 7439-96-5, Manganese, uses 7440-27-9, Terbium, uses 14280-30-9,
 Hydroxide, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (lifetimes of ***two*** - ***color*** holograms recorded in near-
 stoichiometric ***lithium*** niobate and ***lithium***
 tantalate crystals)
 IT 12031-63-9, Lithium niobate LiNbO3 12031-66-2, ***Lithium***
 tantalate (LiTaO3)
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP
 (Physical process); PROC (Process)
 (lifetimes of ***two*** - ***color*** holograms recorded in near-
 stoichiometric ***lithium*** niobate and ***lithium***
 tantalate crystals)

RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD

- RE
- (1) Amodei, J; Appl Phys Lett 1971, V18, P540 CAPLUS
 - (2) Bai, Y; Phys Rev Lett 1997, V78, P2944 CAPLUS
 - (3) Buse, K; Nature 1998, V393, P665 CAPLUS
 - (4) Coufal, H; Holographic Data Storage 2000
 - (5) Guenther, H; Appl Opt 1998, V37, P7611 CAPLUS
 - (6) Herrington, J; Solid State Commun 1973, V12, P351 CAPLUS
 - (7) Hesselink, L; Science 1998, V282, P1089 CAPLUS
 - (8) Kapphan, S; Phys Status Solidi A 1992, V133, P159 CAPLUS
 - (9) Kitamura, K; J Cryst Growth 1992, V116, P327 CAPLUS
 - (10) Kitamura, K; Photorefractive Effects, Materials, and Devices, OSA
 Proceedings Series 2003, V87, P666 CAPLUS
 - (11) Klauer, S; Phys Rev B 1992, V45, P2786 CAPLUS
 - (12) Kovacs, L; J Phys Chem Solids 1991, V52, P797 CAPLUS
 - (13) Kovacs, L; Phys Status Solidi A 1990, V120, P97 CAPLUS
 - (14) Lee, M; Appl Phys Lett 2000, V76, P1653 CAPLUS
 - (15) Liu, Y; Appl Phys Lett 2002, V81, P2686 CAPLUS
 - (16) Liu, Y; Appl Phys Lett 2003, V82, P4218 CAPLUS

- (17) Liu, Y; J Appl Phys 2004, V95, P7637 CAPLUS
- (18) Mandula, G; International Conference on Solid State Crystals 2000: Growth, Characterization and Applications of Single Crystals, Proc SPIE 2001, V4412, P226 CAPLUS
- (19) Matthews, P; J Appl Phys 1992, V72, P2562 CAPLUS
- (20) Nakamura, M; J Cryst Growth 2002, V245, P267 CAPLUS
- (21) O'Bryan, H; J Am Ceram Soc 1985, V68, P493 CAPLUS
- (22) Polgar, K; J Cryst Growth 1997, V177, P211 CAPLUS
- (23) Schirmer, O; J Phys Chem Solids 1991, V52, P185 CAPLUS
- (24) Staebler, D; Ferroelectrics 1972, V3, P107 CAPLUS
- (25) Von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS
- (26) Vormann, H; Solid State Commun 1981, V40, P543 CAPLUS
- (27) Watanabe, Y; J Phys Condens Matter 1995, V7, P3627 CAPLUS
- (28) Yang, Y; Appl Phys Lett 2001, V78, P4076 CAPLUS
- (29) Yang, Y; J Opt Soc Am B 2003, V20, P1491 CAPLUS

L4 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:898812 CAPLUS <<LOGINID::20061206>>

DN 141:373802

ED Entered STN: 28 Oct 2004

TI Ferroelectric materials and their ***2*** - ***color*** holographic memory media and wave filter

IN Hatano, Hideki; Liu, Youwen; Kitamura, Kenji; Takekawa, Shunji; Nakamura, Masru; Furukawa, Yasunori

PA Pioneer Electronic Corp., Japan; Toshiba Denko Co., Ltd.; Oxide Corporation

SO Jpn. Kokai Tokkyo Koho, 21 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C30B029-30

ICS C01G035-00; G02B001-02; G02B005-28; G03H001-02

CC 76-8 (Electric Phenomena)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004300015	A2	20041028	JP 2004-40215	20040217
	US 2004234867	A1	20041125	US 2004-798974	20040312
PRAI	JP 2003-69897	A	20030314		
	JP 2004-40215	A	20040217		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2004300015	ICM	C30B029-30
	ICS	C01G035-00; G02B001-02; G02B005-28; G03H001-02
	IPCI	C30B0029-30 [ICM,7]; C30B0029-10 [ICM,7,C*]; C01G0035-00 [ICS,7]; G02B0001-02 [ICS,7]; G02B0001-00 [ICS,7,C*]; G02B0005-28 [ICS,7]; G03H0001-02 [ICS,7]
	IPCR	G03H0001-02 [I,A]; G03H0001-02 [I,C*]; G03H0001-26 [I,A]; G03H0001-26 [I,C*]
	FTERM	2H048/GA03; 2H048/GA13; 2H048/GA33; 2H048/GA60; 2H048/GA62; 2K008/AA04; 2K008/BB05; 2K008/DD23; 2K008/EE01; 2K008/FF17; 2K008/HH01; 2K008/HH06; 2K008/HH13; 2K008/HH18; 2K008/HH26; 2K008/HH28; 4G048/AA04; 4G048/AB01; 4G048/AB02; 4G048/AB05; 4G048/AC02; 4G048/AD07; 4G048/AE05; 4G077/AA02; 4G077/AB04; 4G077/CF10; 4G077/EC07; 4G077/HA11
US 2004234867	IPCI	G03H0001-02 [ICM,7]
	IPCR	G02B0005-28 [I,C*]; G02B0005-28 [I,A]; C01G0035-00 [I,C*]; C01G0035-00 [I,A]; C30B0029-10 [I,C*]; C30B0029-30 [I,A]; G02B0001-00 [I,C*]; G02B0001-02 [I,A]; G03H0001-02 [I,C*]; G03H0001-02 [I,A]; G03H0001-26 [I,C*]; G03H0001-26 [I,A]
	NCL	430/001.000; 359/007.000; 430/002.000
	ECLA	G03H001/02; G03H001/26; G11B007/0045; G11B007/0065; G11B007/125L2; G11B007/243

AB The ferroelec. materials whose refractive indexes change by irradiation of ***2*** lights of different ***wavelength*** without redn. treatment nor addn. of impurities comprise single-cryst. Li tantalate (LT) having the compn. of $\text{Li}_2\text{O}/(\text{Li}_2\text{O} + \text{Ta}_2\text{O}_5) = 0.4966-0.4995$, i.e., near-***stoichiometric*** (NS) compn. Preferably, the proton concn. in the NSLT single crystal is defined that IR absorption coeff. in the [OH]

stretch mode becomes 0-0.15 cm⁻¹. The ***2*** - ***color*** holog. memory media contain the NSLT single crystal. The wave filter contains the NSLT single crystal having .gtoreq.1 refractive index gratings.

ST near ***stoichiometric*** ***lithium*** ***tantalate*** ferroelec material; ***two*** ***color*** holog memory ferroelec ***lithium*** ***tantalate*** ; wave filter ferroelec ***lithium*** ***tantalate*** ; dopant free near ***stoichiometric*** ***lithium*** ***tantalate***

IT Ferroelectric materials
Holographic recording materials
Optical filters
(single-cryst. near- ***stoichiometric*** Li tantalate ferroelec. materials for ***2*** - ***color*** holog. memory media and wave filter)

IT 12031-66-2DP, ***Lithium*** ***tantalate*** , ***stoichiometric***
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(single-cryst. near- ***stoichiometric*** Li tantalate ferroelec. materials for ***2*** - ***color*** holog. memory media and wave filter)

L4 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:463034 CAPLUS <<LOGINID::20061206>>
DN 141:181874
ED Entered STN: 09 Jun 2004

TI ***Two*** - ***color*** photorefractive properties in near- ***stoichiometric*** ***lithium*** ***tantalate*** crystals

AU Liu, Youwen; Kitamura, Kenji; Takekawa, Shunji; Nakamura, Masaru; Furukawa, Yasunori; Hatano, Hideki

CS Advanced Materials Laboratory, National Institute for Materials Science, 1-1 Namiki, Tsukuba, Ibaraki, 305-0044, Japan

SO Journal of Applied Physics (2004), 95(12), 7637-7644
CODEN: JAPIAU; ISSN: 0021-8979

PB American Institute of Physics
DT Journal
LA English
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 73, 76

AB The ***two*** - ***color*** photorefractive properties in undoped as-grown near- ***stoichiometric*** ***lithium*** ***tantalate*** crystals were investigated, where a near-IR laser and a cw UV beam were used for writing and gating, resp. The key parameters in characterizing ***two*** - ***color*** photorefractive effect, light-induced absorption change, ***two*** - ***color*** sensitivity, refractive index change, readout characteristics, and dark decay were measured by changing intensities of gating and writing beams, wavelengths of gating and writing beams for the crystals with different near- ***stoichiometric*** crystal compns., and proton concns. The results showed that there exists an optimal crystal compn. of around 49.65% for both sensitivity and refractive index change together with moderate lifetime of small polarons. The achieved refractive index change was on the order of 10⁻⁴, and the obtained max. sensitivity was 0.18 cm/J. The extrapolated lifetime of holograms at room temp. in the crystals without observable OH- absorption was longer than 50 yr. The measurements of UV-induced absorption change at room temp. and low temp. of 77.3 K suggested that the unintentional impurity of Fe and intrinsic defects were responsible for ***two*** - ***color*** photorefractive effect. The excellent ***two*** - ***color*** photorefractive properties of undoped as-grown near- ***stoichiometric*** ***lithium*** ***tantalate*** crystals were discussed based on this mechanism and the phys. properties of ***lithium*** ***tantalate***

ST ***two*** ***color*** photorefractive near ***stoichiometric*** ***lithium*** ***tantalate*** holog

IT Refractive index
(changes of near- ***stoichiometric*** ***lithium*** ***tantalate*** crystals)

IT Curie temperature (ferroelectric)
IR spectra
Optical recording
UV and visible spectra

(of near- ***stoichiometric*** ***lithium*** ***tantalate***
 crystals)
 IT Polaron
 (polaron lifetime of near- ***stoichiometric*** ***lithium***
 tantalate crystals)
 IT Holography
 (***two*** - ***color*** holog. recording in near-
 stoichiometric ***lithium*** ***tantalate*** crystals)
 IT Crystal defects
 Photorefractive effect
 (***two*** - ***color*** photorefractive properties in near-
 stoichiometric ***lithium*** ***tantalate*** crystals)
 IT 7439-96-5, Manganese, properties
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (***two*** - ***color*** photorefractive properties in near-
 stoichiometric ***lithium*** ***tantalate*** crystals)
 IT 7439-89-6, Iron, properties
 RL: OCCU (Occurrence, unclassified); PRP (Properties); OCCU (Occurrence)
 (***two*** - ***color*** photorefractive properties in near-
 stoichiometric ***lithium*** ***tantalate*** crystals)
 IT 12031-66-2D, ***Lithium*** ***tantalate*** (LiTaO3), near
 stoichiometric
 RL: PRP (Properties)
 (***two*** - ***color*** photorefractive properties in near-
 stoichiometric ***lithium*** ***tantalate*** crystals)

RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Amodei, J; Appl Phys Lett 1971, V18, P540 CAPLUS
- (2) Bai, Y; Phys Rev Lett 1997, V78, P2944 CAPLUS
- (3) Buse, K; Opt Mater (Amsterdam, Neth) 1995, V4, P237 CAPLUS
- (4) Coufal, H; Holographic Data Storage 2000
- (5) de Miguel-Sanz, E; Appl Phys B: Lasers Opt 2000, V70, P379 CAPLUS
- (6) Guenther, H; Appl Opt 1998, V37, P7611 CAPLUS
- (7) Gunter, P; Photorefractive Materials and their Applications, Topics in Applied Physics 1988, V61
- (8) Hesselink, L; Science 1998, V282, P1089 CAPLUS
- (9) Imbrock, J; Opt Lett 1999, V24, P1302 CAPLUS
- (10) Iyi, N; J Solid State Chem 1992, V101, P340 CAPLUS
- (11) Kappers, L; Phys Rev B 1985, V31, P6792 CAPLUS
- (12) Kitamura, K; J Cryst Growth 1992, V116, P327 CAPLUS
- (13) Klauer, S; Phys Rev B 1992, V45, P2786 CAPLUS
- (14) Kogelnik, H; Bell Syst Tech J 1969, V48, P2909
- (15) Kovacs, L; J Phys Chem Solids 1991, V52, P797 CAPLUS
- (16) Kratzig, E; Appl Phys 1978, V15, P133
- (17) Lande, D; Opt Lett 1997, V22, P1722 CAPLUS
- (18) Lee, M; Appl Phys Lett 2000, V76, P1653 CAPLUS
- (19) Lee, M; J Appl Phys 2001, V89, P5311 CAPLUS
- (20) Liu, L; Photorefractive Effects, Materials, and Devices, Vol 87 of OSA Proceedings Series 2003, P626 CAPLUS
- (21) Liu, Y; Appl Phys Lett 2002, V81, P2686 CAPLUS
- (22) Liu, Y; Appl Phys Lett 2003, V82, P4218 CAPLUS
- (23) Matthews, P; J Appl Phys 1992, V72, P2562 CAPLUS
- (24) Micheron, F; Appl Phys Lett 1972, V20, P79 CAPLUS
- (25) Nakamura, M; J Cryst Growth 2002, V245, P267 CAPLUS
- (26) Nee, I; J Opt Soc Am B 2003, V20, P1593 CAPLUS
- (27) Psaltis, D; Science 2002, V298, P1359 CAPLUS
- (28) Rakuljic, G; Opt Lett 1993, V18, P459
- (29) Schirmer, O; J Phys Chem Solids 1991, V52, P185 CAPLUS
- (30) Sweeney, K; Appl Phys Lett 1983, V43, P336 CAPLUS
- (31) Tsuya, H; Jpn J Appl Phys 1973, V12, P1896 CAPLUS
- (32) Von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS
- (33) Von der Linde, D; J Appl Phys 1976, V47, P217 CAPLUS
- (34) Wevering, S; J Opt Soc Am B 2001, V18, P472 CAPLUS
- (35) Wierschem, M; Phys Status Solidi B 1999, V215, PR7 CAPLUS
- (36) Yang, Y; Appl Phys Lett 2001, V78, P4076 CAPLUS
- (37) Yang, Y; J Opt Soc Am B 2003, V20, P1491 CAPLUS

L4 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:397282 CAPLUS <<LOGINID::20061206>>

DN 142:143937

ED Entered STN: 17 May 2004

TI ***Nonvolatile*** holographic storage in near- ***stoichiometric***

LiTaO3 crystals

AU Liu, Y.; Kitamura, K.; Takekawa, S.; Nakamura, M.; Furukawa, Y.; Hatano, H.

CS Nanomaterials Laboratory, National Institute for Materials Science, Tsukuba, Ibaraki, 305-0044, Japan

SO Trends in Optics and Photonics (2003), 88 (Conference on Lasers and Electro-Optics (CLEO), 2003), CWA25/1-CWA25/2

CODEN: TOPRBS

PB Optical Society of America

DT Journal

LA English

CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

AB ***Nonvolatile*** holograms have been recorded in non doped near-stoichiometric LiTaO3 crystal of 2 mm-thickness. High sensitivity of 0.067 cm/J and large M/# of 1.59 are achieved simultaneously for gating intensity of 0.31 W/cm2 and writing intensity of 12.8 W/cm2.

ST ***nonvolatile*** holog storage near ***stoichiometric*** ***lithium*** ***tantalate*** crystal; holog recording near ***stoichiometric*** ***lithium*** ***tantalate*** crystal

IT Holographic recording materials

Holography

(***nonvolatile*** holog. storage in near-stoichiometric LiTaO3 crystals)

IT 12031-66-2D, ***Lithium*** ***tantalate*** (LiTaO3), near-stoichiometric

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)

(***nonvolatile*** holog. storage in near-stoichiometric LiTaO3 crystals)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Guenther, H; Appl Opt 1998, V37, P7611 CAPLUS

(2) Hesselink, L; Science 1998, V282, P1089 CAPLUS

(3) Imbrock, J; Opt Lett 1999, V24, P1302 CAPLUS

(4) Liu, Y; Appl Phys Lett 2002, V81, P2686 CAPLUS

L4 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2003:682977 CAPLUS <<LOGINID::20061206>>

DN 140:189865

ED Entered STN: 02 Sep 2003

TI ***Two*** - ***color*** holographic recording in nondoped near-stoichiometric ***lithium*** ***tantalate*** with continuous-wave lasers

AU Liu, Youwen; Kitamura, Kenji; Takekawa, Shunji; Nakamura, Masaru; Furukawa, Yasunori; Hatano, Hideki

CS Advanced Materials Laboratory and Nanomaterials Laboratory, National Institute for Materials Science, Tsukuba, Ibaraki, 305-0044, Japan

SO Trends in Optics and Photonics (2003), 87 (Photorefractive Effects, Materials, and Devices), 642-648

CODEN: TOPRBS

PB Optical Society of America

DT Journal

LA English

CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

AB ***Nonvolatile*** ***two*** - ***color*** holog. recording was demonstrated in as-grown nondoped SLT crystals with a high sensitivity of 0.086 cm/J with a gating intensity of 1 W/cm2 at 350 nm, a large refractive index change of as much as 1.times.10-4, a high resistance to IR erasure and a long hologram lifetime of five years. Dependences of ***two*** - ***color*** sensitivity and dynamic range on gating and writing intensities are presented. The sensitivity can be further enhanced using writing and gating beams of shorter wavelength without sacrificing readout nonvolatility. 50 Plane-wave holograms are angle-multiplexed with M/# of 0.95.

ST ***nonvolatile*** ***two*** ***color*** holog recording

lithium ***tantalate*** crystal

IT Holographic recording materials

Holography

(***nonvolatile*** ***two*** - ***color*** holog. recording in as-grown nondoped ***lithium*** ***tantalate*** using

continuous-wave lasers)
IT Holographic memory devices
(vol.; ***nonvolatile*** ****two*** - ***color*** holog.
recording in as-grown nondoped ***lithium*** ****tantalate***
using continuous-wave lasers in relation to)
IT 12031-66-2, ***Lithium*** ****tantalate*** (LiTaO3)
RL: PEP (Physical, engineering or chemical process); PYP (Physical
process); PROC (Process)
(***nonvolatile*** ****two*** - ***color*** holog. recording
in as-grown nondoped ***lithium*** ****tantalate*** using
continuous-wave lasers)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; Holographic Data Storage 2000
- (2) Anon; Photorefractive Materials and Their Applications I 1988, V61
- (3) Bai, Y; Phys Rev Lett 1997, V78, P2944 CAPLUS
- (4) Buse, K; Nature 1998, V393, P665 CAPLUS
- (5) Furukawa, Y; J Crystal Growth 1999, V197, P889 CAPLUS
- (6) Guenther, H; Appl Opt 1998, V37, P7611 CAPLUS
- (7) Hesselink, L; Science 1998, V282, P1089 CAPLUS
- (8) Imbrock, J; Opt Lett 1999, V24, P1302 CAPLUS
- (9) Kappers, L; Phys Rev B 1985, V31, P6792 CAPLUS
- (10) Kogelnik, H; Bell Syst Tech J 1969, V48, P2909
- (11) Kratzig, E; Appl Phys 1978, V15, P133
- (12) Liu, Y; Appl Phys Lett 2002, V81, P2686 CAPLUS
- (13) Liu, Y; Opt Lett 2000, V25, P908 CAPLUS
- (14) Mok, F; Opt Lett 1996, V21, P896
- (15) Nakamura, M; J Crystal Growth 2002, V245, P267 CAPLUS
- (16) Schirmer, O; J Phys Chem Solids 1991, V52, P185 CAPLUS
- (17) von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS
- (18) Wevering, S; J Opt Soc Am B 2001, V18, P472 CAPLUS

L4 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2003:458344 CAPLUS <<LOGINID::20061206>>

DN 139:157314

ED Entered STN: 16 Jun 2003

TI ***Nonvolatile*** ****two*** - ***color*** holographic recording
in nondoped near- ***stoichiometric*** ***lithium***
****tantalate*** crystals with continuous-wave lasers

AU Liu, Youwen; Kitamura, Kenji; Takekawa, Shunji; Nakamura, Masaru;
Furukawa, Yasunori; Hatano, Hideki

CS Advanced Materials Laboratory and Nanomaterials Laboratory, National
Institute for Materials Science, 1-1 Namiki, Tsukuba, Ibaraki, 305-0044,
Japan

SO Applied Physics Letters (2003), 82(24), 4218-4220

CODEN: APPLAB; ISSN: 0003-6951

PB American Institute of Physics

DT Journal

LA English

CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

AB ***Nonvolatile*** holograms have been recorded in nondoped near-
stoichiometric LiTaO3 crystals by use of a near-IR laser for
writing and a UV beam as a gating source. This material exhibits good
overall ****two*** - ***color*** holog. recording characteristics
including a high sensitivity of 0.086 cm/J with a gating intensity of 1
W/cm2 at 350 nm, a large refractive index change of as much as
1.times.10-4, a high resistance to IR erasure, and a long hologram
lifetime of five years. The sensitivity can be further enhanced using
writing and gating beams of a shorter wavelength without sacrificing
readout nonvolatility.

ST ***nonvolatile*** ****two*** ***color*** holog recording
stoichiometric ***lithium*** ****tantalate*** crystal

IT Holography

(***nonvolatile*** ****two*** - ***color*** holog. recording
in nondoped near- ***stoichiometric*** ***lithium***
****tantalate*** crystals with continuous-wave)

IT Holographic recording materials

(***nonvolatile*** ****two*** - ***color*** holog. recording
in nondoped near- ***stoichiometric*** ***lithium***
****tantalate*** crystals with continuous-wave lasers)

IT 12031-66-2, ***Lithium*** ****tantalate*** (LiTaO3)

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)

(***nonvolatile*** ****two*** - ***color*** holog. recording
in nondoped near- ***stoichiometric*** ***lithium***
****tantarate*** crystals with continuous-wave lasers)

RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Bai, Y; Phys Rev Lett 1997, V78, P2944 CAPLUS
- (2) Bordui, P; J Appl Phys 1995, V78, P4647 CAPLUS
- (3) Buse, K; Nature (London) 1998, V393, P665 CAPLUS
- (4) Coufal, H; Holographic Data Storage 2000
- (5) Furukawa, Y; J Cryst Growth 1999, V197, P889 CAPLUS
- (6) Guenther, H; Appl Opt 1998, V37, P7611 CAPLUS
- (7) Hesselink, L; Science (Washington, DC, U S) 1998, V282, P1089 CAPLUS
- (8) Imbrock, J; Opt Lett 1999, V24, P1302 CAPLUS
- (9) Kappers, L; Phys Rev B 1985, V31, P6792 CAPLUS
- (10) Kogelnik, H; Bell Syst Tech J 1969, V48, P2909
- (11) Kratzig, E; Appl Phys 1978, V15, P133
- (12) Liu, Y; Appl Phys Lett 2002, V81, P2686 CAPLUS
- (13) Liu, Y; Opt Lett 2000, V25, P908 CAPLUS
- (14) Mok, F; Opt Lett 1996, V21, P896
- (15) Schirmer, O; J Phys Chem Solids 1991, V52, P185 CAPLUS
- (16) Von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS
- (17) Wevering, S; J Opt Soc Am B 2001, V18, P472 CAPLUS

=> d his

(FILE 'HOME' ENTERED AT 07:51:05 ON 06 DEC 2006)

FILE 'CAPLUS' ENTERED AT 07:51:17 ON 06 DEC 2006

L1 3918 S ((LITHIUM(3A)TANTALATE) OR LITA03)
L2 207 S L1 AND STOICHIOMETRIC
L3 8 S L2 AND ((TWO(4W) (WAVELENGTH OR COLOR OR PHOTON)) OR NONVOLATI
L4 10 S L2 AND (((TWO OR 2) (5A) (WAVELENGTH OR COLOR OR PHOTON)) OR NO

=> s l2 and (filter or grating)

258635 FILTER
133812 FILTERS
313276 FILTER
(FILTER OR FILTERS)
34420 GRATING
20459 GRATINGS
40460 GRATING
(GRATING OR GRATINGS)

L5 11 L2 AND (FILTER OR GRATING)

=> d all 1-11

L5 ANSWER 1 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2005:1111753 CAPLUS <<LOGINID::20061206>>

DN 144:180007

ED Entered STN: 17 Oct 2005

TI Periodic poling of ***stoichiometric*** ***lithium***
****tantarate***

AU Bamford, Douglas J.; Cook, David J.; Sharpe, Scott J.

CS Physical Sciences Inc., San Ramon, CA, 94583-1295, USA

SO Proceedings of SPIE-The International Society for Optical Engineering
(2004), 5337(Nonlinear Frequency Generation and Conversion: Materials,
Devices, and Applications III), 30-38
CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal

LA English

CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)

Section cross-reference(s): 76

AB The periodic poling of ***stoichiometric*** ***lithium***
****tantarate***, a nonlinear optical material with great promise for the
frequency conversion of high-av.-power solid state lasers, has been
investigated. Two problems with com. available ***stoichiometric***
lithium ****tantarate*** substrates have been identified:

non-reproducibility of the coercive field from one wafer to the next, and susceptibility to the formation of micro-domain defects. Strategies for dealing with these problems have been developed. Wafer-scale poling has been carried out to produce quasi-phases-matching ***gratings*** with periods as short as 7.3 μm on half-millimeter thick substrates and 25.4 μm on millimeter-thick substrates. The phase-matching properties of periodically poled ***stoichiometric*** ***lithium***

tantalate have been measured using nonlinear optical frequency conversion. For processes which generate visible radiation, good agreement with predictions based on the published Sellmeier equation for ***stoichiometric*** lithium tantalite has been obtained.

ST ***stoichiometric*** ***lithium*** ***tantalate*** periodic poling

IT Curie temperature (ferroelectric)
Electric field effects

(periodic poling of ***stoichiometric*** ***lithium***
tantalate, a nonlinear optical material for frequency
conversion of high-av.-power solid state lasers)

IT Dielectric polarization
(periodic poling of ***stoichiometric*** ***lithium***
tantalate, nonlinear optical material for frequency conversion
of high-av.-power solid state lasers)

IT Nonlinear optical materials

Nonlinear optical properties

(phase-matching properties of periodically poled ***stoichiometric***
lithium ***tantalate*** using nonlinear optical frequency
conversion)

IT 12031-66-2, ***Lithium*** ***tantalate***

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP
(Physical process); PROC (Process)

(periodic poling of ***stoichiometric*** ***lithium***
tantalate, nonlinear optical material for frequency conversion
of high-av.-power solid state lasers)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Alexandrovski, A; SPIE 1999, V3610, P44 CAPLUS
- (2) Baumer, C; Appl Phys Lett 2003, V82, P2248 CAPLUS
- (3) Bruner, A; Opt Lett 2003, V28, P194 CAPLUS
- (4) Byer, R; J Nonlinear Optical Physics and Materials 1997, V6, P549 CAPLUS
- (5) Fejer, M; IEEE Journal of Quantum Electronics 1992, V28, P2631
- (6) Field, S; Diode-Pumped Solid State Lasers: Applications and Issues 1997, P87
- (7) Hatanaka, T; Opt Lett 2000, V25, P651 CAPLUS
- (8) Huang, L; Appl Phys B 2001, V72, P301 CAPLUS
- (9) Katz, M; presented at Stanford Photonics Research Center Annual Meeting 2003
- (10) Kim, I; J Cryst Growth 2001, V229, P243 CAPLUS
- (11) Kitamura, K; Appl Phys Lett 1998, V73, P3073 CAPLUS
- (12) Kitamura, K; Ferroelectrics 2001, V257, P235 CAPLUS
- (13) Miller, G; PhD Dissertation, Stanford University 1998
- (14) Shur, V; Phys Solid State 1999, V41, P1681 CAPLUS

L5 ANSWER 2 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2005:863920 CAPLUS <<LOGINID::20061206>>

DN 143:484730

ED Entered STN: 23 Aug 2005

TI Interband photorefractive in pure and Mg-doped near- ***stoichiometric***
LiTaO₃

AU Juvalta, F.; Dittrich, Ph.; Jazbinsek, M.; Gunter, P.; Montemezzani, G.;
Kitamura, K.; Furukawa, Y.

CS Nonlinear Optics Laboratory, Swiss Federal Institute of Technology,
Zurich, CH-8093, Switz.

SO Trends in Optics and Photonics (2005), 99(Photorefractive Effects,
Materials, and Devices), 96-100

CODEN: TOPRBS

PB Optical Society of America

DT Journal

LA English

CC 73-4 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)

AB We investigate interband photorefractive in pure and Mg-doped near-
stoichiometric LiTaO₃ at the deep UV wavelength of 257 nm. By

controlling the stoichiometry, the response time and dynamic range of the interband photorefractive effect can be very much improved. Measured time consts. are in the order of a few tens of milliseconds for UV light intensities of about 100 mW/cm². Further, we report that Mg doping of near- ***stoichiometric*** LiTaO₃ increases the ***grating*** response rate by a factor of 50 compared with the one in undoped crystals. For UV light intensities larger than 500 mW/cm² the response time is faster than one millisecond. In Mg-doped near- ***stoichiometric*** LiTaO₃, quasi-fixing of holog. ***gratings*** with UV light and nondestructive readout in the visible has been obsd.

ST pure magnesium doped near ***stoichiometric*** ***lithium***
tantalate interband photorefractive effect
IT Photorefractive effect
UV and visible spectra
(interband photorefractive effect in pure and magnesium-doped near-
stoichiometric lithium tantalum oxide at deep UV wavelength of
257 nm)
IT 12031-66-2, Lithium tantalum oxide (LiTaO₃)
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(Mg-doped; interband photorefractive effect in pure and magnesium-doped near-
stoichiometric lithium tantalum oxide at deep UV wavelength of
257 nm)
IT 7439-95-4, Magnesium, properties
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(dopant; interband photorefractive effect in pure and magnesium-doped near-
stoichiometric lithium tantalum oxide at deep UV wavelength of
257 nm)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Bernasconi, P; Appl Phys B 1999, V68, P833 CAPLUS
- (2) Dittrich, P; J Opt Soc Am B 2004, V21, P632 CAPLUS
- (3) Dittrich, P; Opt Com 2004, V234, P131 CAPLUS
- (4) Dittrich, P; Opt Comm 2002, V214, P363 CAPLUS
- (5) Dittrich, P; Opt Lett 1999, V24, P1508 CAPLUS
- (6) Furukawa, Y; J Cryst Growth 1999, V197, P889 CAPLUS
- (7) Furukawa, Y; Jap J of Appl Phys 1999, V38, P1816 CAPLUS
- (8) Imbrock, J; J Opt Soc Am B 1999, V16, P1392 CAPLUS
- (9) Ryf, R; Opt Lett 2001, V26, P1666 CAPLUS

L5 ANSWER 3 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:898812 CAPLUS <<LOGINID::20061206>>

DN 141:373802

ED Entered STN: 28 Oct 2004

TI Ferroelectric materials and their 2-color holographic memory media and wave ***filter***

IN Hatano, Hideki; Liu, Youwen; Kitamura, Kenji; Takekawa, Shunji; Nakamura, Masru; Furukawa, Yasunori

PA Pioneer Electronic Corp., Japan; Toshiba Denko Co., Ltd.; Oxide Corporation

SO Jpn. Kokai Tokkyo Koho, 21 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C30B029-30

ICS C01G035-00; G02B001-02; G02B005-28; G03H001-02

CC 76-8 (Electric Phenomena)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004300015	A2	20041028	JP 2004-40215	20040217
	US 2004234867	A1	20041125	US 2004-798974	20040312
PRAI	JP 2003-69897	A	20030314		
	JP 2004-40215	A	20040217		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2004300015	ICM	C30B029-30
	ICS	C01G035-00; G02B001-02; G02B005-28; G03H001-02
	IPCI	C30B0029-30 [ICM,7]; C30B0029-10 [ICM,7,C*];

C01G0035-00 [ICS,7]; G02B0001-02 [ICS,7]; G02B0001-00
 [ICS,7,C*]; G02B0005-28 [ICS,7]; G03H0001-02 [ICS,7]
 IPCR G03H0001-02 [I,A]; G03H0001-02 [I,C*]; G03H0001-26
 [I,A]; G03H0001-26 [I,C*]
 FTERM 2H048/GA03; 2H048/GA13; 2H048/GA33; 2H048/GA60;
 2H048/GA62; 2K008/AA04; 2K008/BB05; 2K008/DD23;
 2K008/EE01; 2K008/FF17; 2K008/HH01; 2K008/HH06;
 2K008/HH13; 2K008/HH18; 2K008/HH26; 2K008/HH28;
 4G048/AA04; 4G048/AB01; 4G048/AB02; 4G048/AB05;
 4G048/AC02; 4G048/AD07; 4G048/AE05; 4G077/AA02;
 4G077/AB04; 4G077/CF10; 4G077/EC07; 4G077/HA11
 US 2004234867 IPCI G03H0001-02 [ICM,7]
 IPCR G02B0005-28 [I,C*]; G02B0005-28 [I,A]; C01G0035-00
 [I,C*]; C01G0035-00 [I,A]; C30B0029-10 [I,C*];
 C30B0029-30 [I,A]; G02B0001-00 [I,C*]; G02B0001-02
 [I,A]; G03H0001-02 [I,C*]; G03H0001-02 [I,A];
 G03H0001-26 [I,C*]; G03H0001-26 [I,A]
 NCL 430/001.000; 359/007.000; 430/002.000
 ECLA G03H001/02; G03H001/26; G11B007/0043; G11B007/0065;
 G11B007/125L2; G11B007/243
 AB The ferroelec. materials whose refractive indexes change by irradiation of 2
 lights of different wavelength without redn. treatment nor addn. of
 impurities comprise single-cryst. Li tantalate (LT) having the compn. of
 $\text{Li}_2\text{O}/(\text{Li}_2\text{O} + \text{Ta}_2\text{O}_5) = 0.4966-0.4995$, i.e., near- ***stoichiometric***
 (NS) compn. Preferably, the proton concn. in the NSLT single crystal is
 defined that IR absorption coeff. in the [OH] stretch mode becomes 0-0.15
 cm^{-1} . The 2-color holog. memory media contain the NSLT single crystal.
 The wave ***filter*** contains the NSLT single crystal having
 .gtoreq.1 refractive index ***gratings***
 ST near ***stoichiometric*** ***lithium*** ***tantalate***
 ferroelec material; two color holog. memory ferroelec ***lithium***
 tantalate; wave ***filter*** ferroelec ***lithium***
 tantalate; dopant free near ***stoichiometric***
 lithium ***tantalate***
 IT Ferroelectric materials
 Holographic recording materials
 Optical ***filters***
 (single-cryst. near- ***stoichiometric*** Li tantalate ferroelec.
 materials for 2-color holog. memory media and wave ***filter***)
 IT 12031-66-2DP, ***Lithium*** ***tantalate***, near-
 stoichiometric
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material
 use); PREP (Preparation); USES (Uses)
 (single-cryst. near- ***stoichiometric*** Li tantalate ferroelec.
 materials for 2-color holog. memory media and wave ***filter***)
 L5 ANSWER 4 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 2004:674296 CAPLUS <<LOGINID::20061206>>
 DN 142:400090
 ED Entered STN: 19 Aug 2004
 TI Vapor-transport equilibrated near- ***stoichiometric*** ***lithium***
 tantalate for frequency-conversion applications
 AU Katz, M.; Route, R. K.; Hum, D. S.; Parameswaran, K. R.; Miller, G. D.;
 Fejer, M. M.
 CS E. L. Ginzton Laboratory, Stanford University, Stanford, CA, 94305-4088,
 USA
 SO Optics Letters (2004), 29(15), 1775-1777
 CODEN: OPLEDP; ISSN: 0146-9592
 PB Optical Society of America
 DT Journal
 LA English
 CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)
 AB Near- ***stoichiometric*** ***lithium*** ***tantalate*** (SLT)
 crystals were produced from congruent ***lithium*** ***tantalate***
 by a vapor-transport equilibration process. Because of the resultant
 increase in photocond. and redn. in photogalvanism, the crystals showed no
 observable photorefractive damage at 514.5 nm up to the highest intensity
 used, 2 MW/cm². The crystals also exhibited low green-induced IR
 absorption, a Curie temp. of 693 .degree.C, and a coercive field of 80
 V/mm. The SLT samples were periodically poled with an 8-.mu.m-period
 grating, permitting first-order quasi-phase-matched

second-harmonic generation of 532-nm radiation at 43 .degree.C. A 17-mm-long sample generated 1.6 W of continuous-wave output power at 532 nm for 50 h. With 150-ns pulses at a 100-kHz repetition rate in the same sample, 5-W av.-power, 532-nm radiation was generated for 1000 h. No damage to the crystal and no aging effects were obsd. during these expts.

ST vapor transport equilibrated near ***stoichiometric*** ***lithium***
 tantalate frequency conversion

IT Curie temperature (ferroelectric)
 Light
 Nonlinear optical properties
 Photoconductivity
 Photorefractive effect
 Second-harmonic generation
 (vapor-transport equilibrated near- ***stoichiometric***
 lithium ***tantalate*** for frequency-conversion
 applications)

IT Mass transfer
 (vapor; vapor-transport equilibrated near- ***stoichiometric***
 lithium ***tantalate*** for frequency-conversion
 applications)

IT 12769-51-6, ***Lithium*** tantalum oxide
 RL: DEV (Device component use); USES (Uses)
 (***lithium*** ***tantalate*** ; vapor-transport equilibrated
 near- ***stoichiometric*** ***lithium*** ***tantalate*** for
 frequency-conversion applications)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Abrahams, S; Acta Crystallogr Sect B 1986, V42, P61
- (2) Alexandrovski, A; Proc SPIE 1999, V3610, P44 CAPLUS
- (3) Bermudez, V; Appl Phys Lett 1997, V70, P729 CAPLUS
- (4) Bruner, A; Opt Lett 2003, V28, P194 CAPLUS
- (5) Furukawa, Y; Appl Phys Lett 2000, V77, P2494 CAPLUS
- (6) Furukawa, Y; Appl Phys Lett 2001, V78, P1970 CAPLUS
- (7) Glass, A; J Electron Mater 1975, V4, P915 CAPLUS
- (8) Gopalan, V; Appl Phys Lett 1998, V72, P1981 CAPLUS
- (9) Gunter, P; Photorefractive Materials and Their Applications 1988, P7
- (10) Hatanaka, T; Opt Lett 2000, V25, P651 CAPLUS
- (11) Holman, R; Materials, Science Research 1978, V11, P343 CAPLUS
- (12) Jundt, D; IEEE J Quantum Electron 1990, V26, P135 CAPLUS
- (13) Mizuuchi, K; Jpn J Appl Phys 2003, V42, PL1296 CAPLUS
- (14) Myers, L; Opt Lett 1996, V21, P591 CAPLUS

L5 ANSWER 5 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:257817 CAPLUS <<LOGINID::20061206>>

DN 141:250441

ED Entered STN: 29 Mar 2004

TI Sub-millisecond interband photorefractive effects in magnesium doped
 lithium ***tantalate***

AU Dittrich, Philipp; Montemezzani, Germano; Habu, Masayuki; Matsukura,
 Makoto; Takekawa, Shunji; Kitamura, Kenji; Gunter, Peter

CS Swiss Federal Institute of Technology, Institute of Quantum Electronics,
 Nonlinear Optics Laboratory, ETH Honggerberg, Zurich, CH-8093, Switz.

SO Optics Communications (2004), 234(1-6), 131-136
 CODEN: OPCOB8; ISSN: 0030-4018

PB Elsevier Science B.V.

DT Journal

LA English

CC 73-2 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)

AB Doping of near ***stoichiometric*** Li tantalate with Mg leads to
 enhanced interband photorefractive effects compared with undoped crystals.
 Studies are performed at the deep UV wavelength .lambda.UV = 257 nm by
 Bragg diffraction expts. The formation of 2 ***grating*** components
 with a destructive mutual phase shift is obsd. For UV light intensities
 larger than .apprx.500 mW/cm2 the typical time const. for the response of
 the interband ***grating*** is faster than 1 ms. The authors also
 obsd. quasi-fixing of holog. ***gratings*** with UV light and
 nondestructive, optically switchable readout at the wavelength
 .lambda.HeNe = 632.8 nm.

ST magnesium doped ***lithium*** ***tantalate*** submillisecond
 interband photorefractive; UV visible spectra magnesium doped
 lithium ***tantalate*** ; diffraction ***grating*** holog

magnesium doped ***lithium*** ***tantalate***
 IT Photorefractive effect
 (interband; sub-millisecond interband photorefractive effect in magnesium
 doped ***lithium*** ***tantalate***)
 IT Holographic diffraction ***gratings***
 Optical diffraction
 UV and visible spectra
 (of magnesium doped ***lithium*** ***tantalate***)
 IT 1309-48-4, Magnesium oxide (MgO), properties 7439-95-4, Magnesium,
 properties 22537-22-0, Magnesium 2+, properties
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (LiTaO3 contg.; sub-millisecond interband photorefractive effect in magnesium
 doped ***lithium*** ***tantalate***)
 IT 12031-66-2, ***Lithium*** ***tantalate*** (LiTaO3)
 RL: PRP (Properties)
 (Mg-doped; sub-millisecond interband photorefractive effect in magnesium doped
 lithium ***tantalate***)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD

- RE
- (1) Anon; Photorefractive Materials and Their Applications 1988, V1
 - (2) Baumer, C; J Appl Phys 2003, V93, P3102 CAPLUS
 - (3) Bernasconi, P; Appl Phys B 1999, V68, P833 CAPLUS
 - (4) Bernasconi, P; Ferroelectrics 1999, V223, P373 CAPLUS
 - (5) Bryan, D; Appl Phys Lett 1984, V44(9), P847 CAPLUS
 - (6) Carrascosa, M; Appl Phys B 2001, V72, P697
 - (7) Dittrich, P; J Opt Soc Am B, in press
 - (8) Furukawa, Y; J Cryst Growth 1999, V197, P889 CAPLUS
 - (9) Furukawa, Y; Jpn J Appl Phys 1999, V38, P1816 CAPLUS
 - (10) Imbrock, J; J Opt Soc Am B 1999, V16, P1392 CAPLUS
 - (11) Jazbinsek, M; Appl Phys B 2002, V75, P891 CAPLUS
 - (12) Kratzig, E; Appl Phys 1978, V15, P133
 - (13) Montemezzani, G; Opt Lett 1993, V18, P833
 - (14) Montemezzani, G; Phys Rev B 1994, V49, P2484 CAPLUS
 - (15) Nitanda, F; Jpn J Appl Phys 1995, V34, P1546 CAPLUS
 - (16) Volk, T; Ferroelectrics 1996, V183, P291 CAPLUS
 - (17) Xu, J; Opt Lett 2000, V25, P129 CAPLUS
 - (18) Zhong, G; 11th International Quantum Electronics Conference 1980, P631

L5 ANSWER 6 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:185038 CAPLUS <<LOGINID::20061206>>

DN 141:78611

ED Entered STN: 08 Mar 2004

TI Deep-ultraviolet interband photorefractive effect in ***lithium***
 tantalate

AU Dittrich, Philipp; Koziarska-Glinka, Bozena; Montemezzani, Germano;
 Gunter, Peter; Takekawa, Shunji; Kitamura, Kenji; Furukawa, Yasunori
 CS Swiss Federal Institute of Technology, Institute of Quantum Electronics,
 Nonlinear Optics Laboratory, ETH Honggerberg, Zurich, CH-8093, Switz.

SO Journal of the Optical Society of America B: Optical Physics (2004),
 21(3), 632-639

CODEN: JOBPDE; ISSN: 0740-3224

PB Optical Society of America

DT Journal

LA English

CC 73-2 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)

AB Interband photorefractive effect in near- ***stoichiometric*** ***lithium***
 tantalate is demonstrated and investigated at the deep-UV
 wavelength $\lambda_{UV}=257$ nm. Formation of two distinct ***grating***
 components is directly obsd. in depth-resolved measurements. The
 diffraction efficiency of a Bragg ***grating*** is measured as a
 function of the UV light intensity, the ***grating*** spacing, and the
 depth of the readout beam beneath the crystal surface. Typical time
 consts. for the interband effects are of the order of a few tens of
 milliseconds for UV light intensities of approx. 100 mW/cm², 3 orders of
 magnitude faster than the time consts. reported previously for
 lithium ***tantalate*** .

ST UV interband photorefractive effect ***lithium*** ***tantalate***

IT Holography

Optical diffraction

Photorefractive effect

(deep-UV interband photorefractive effect in ***lithium***

tantalate)
 IT 12031-66-2D, ***Lithium*** ***tantalate*** LiTaO3, near-
 stoichiometric
 RL: PRP (Properties)
 (deep-UV interband photorefractive in ***lithium***
 tantalate)
 RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE
 (1) Baumer, C; J Appl Phys 2003, V93, P3102 CAPLUS
 (2) Bernasconi, P; Appl Phys B 1999, V68, P833 CAPLUS
 (3) Bernasconi, P; Ferroelectrics 1999, V223, P373 CAPLUS
 (4) Bernasconi, P; Opt Lett 1999, V24, P199
 (5) Bruner, A; Opt Lett 2003, V28, P194 CAPLUS
 (6) Carrascosa, M; Appl Phys B 2001, V72, P697
 (7) Dittrich, P; Opt Commun 2002, V214, P363 CAPLUS
 (8) Dittrich, P; Opt Lett 1999, V24, P1508 CAPLUS
 (9) Fukuda, T; J Cryst Growth 1979, V46, P179 CAPLUS
 (10) Furukawa, Y; J Cryst Growth 1999, V197, P889 CAPLUS
 (11) Furukawa, Y; Jpn J Appl Phys 1999, V38, P1816 CAPLUS
 (12) Gunter, P; Nonlinear Optical Effects and Materials, Vol 72 of Springer
 Series in Optical Sciences 2000
 (13) Gunter, P; Photorefractive Materials and Their Applications 1988, V1
 (14) Iyi, N; J Solid State Chem 1992, V101, P340 CAPLUS
 (15) Jazbinsek, M; Appl Phys B 2002, V75, P891 CAPLUS
 (16) Kitamura, K; J Cryst Growth 1992, V116, P327 CAPLUS
 (17) Kratzig, E; Appl Phys 1978, V15, P133
 (18) Linde, D; Handbook of Chemistry and Physics 1992-1993
 (19) Luther-Davies, B; J Phys C 1970, V3, PL106 CAPLUS
 (20) Montemezzani, G; Opt Lett 1993, V18, P1144 CAPLUS
 (21) Montemezzani, G; Phys Rev B 1994, V49, P2484 CAPLUS
 (22) Montemezzani, G; Phys Rev E 1997, V55, P1035 CAPLUS
 (23) Nakamura, M; Jpn J Appl Phys 2002, V41, PL465 CAPLUS
 (24) Ryf, R; Opt Lett 2001, V26, P1666 CAPLUS
 (25) Ryf, R; Ph D thesis Swiss Federal Institute of Technology,
<http://e-collection.ethbib.ethz.ch/show?type=diss&nr=13546> 2000
 (26) Xu, J; Opt Lett 2000, V25, P129 CAPLUS

 L5 ANSWER 7 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 2003:879031 CAPLUS <<LOGINID::20061206>>
 DN 140:243491
 ED Entered STN: 10 Nov 2003
 TI Infrared holographic recording in ***lithium*** ***tantalate***
 crystals by means of the pyroelectric effect
 AU Eggert, Helge A.; Imbrock, Joerg; Baumer, Christoph; Hesse, Hartmut;
 Kraetzig, Eckhard
 CS Fachbereich Physik, Universitaet Osnabrueck, Osnabrueck, 49069, Germany
 SO Optics Letters (2003), 28(20), 1975-1977
 CODEN: OPLEDP; ISSN: 0146-9592
 PB Optical Society of America
 DT Journal
 LA English
 CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)
 AB IR holog. recording in a two-step process is demonstrated in
 stoichiometric iron-doped ***lithium*** ***tantalate***
 crystals. Through absorption of two intersecting IR pulses (.lambda. =
 1064 nm) a temp. ***grating*** and thus a modulated pyroelec. field
 build up. Free electrons, excited by homogeneous light of a shorter
 wavelength (.lambda. = 532 nm) drift in this field, and a phase hologram
 is stored that can be read nondestructively. The change in refractive
 index depends mainly on the absorption coeff. at the wavelength of the
 recording light and on the intensity of the IR light. The proposed method
 may be extended to telecommunication wavelengths by choice of suitable
 dopants.
 ST IR holog recording ***lithium*** ***tantalate*** crystal pyroelec
 effect
 IT Absorptivity
 Pyroelectricity
 Refractive index
 (IR holog. recording in iron-doped ***lithium*** ***tantalate***
 crystals by pyroelec. effect)
 IT Holography

(IR; IR holog. recording in iron-doped ***lithium***
tantalate crystals by pyroelec. effect)
IT 12031-66-2, ***Lithium*** ***tantalate*** (LiTaO3)
RL: PEP (Physical, engineering or chemical process); PYP (Physical
process); PROC (Process)
(iron-doped; IR holog. recording in iron-doped ***lithium***
tantalate crystals by pyroelec. effect)
IT 15438-31-0, Iron(2+), processes
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical
process); PYP (Physical process); PROC (Process); USES (Uses)
(***lithium*** ***tantalate*** doped with; IR holog. recording
in iron-doped ***lithium*** ***tantalate*** crystals by
pyroelec. effect)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Adibi, A; Phys Rev A 2001, V63, P023813
- (2) Baumer, C; Appl Phys Lett 2003, V82, P2248 CAPLUS
- (3) Baumer, C; J Appl Phys 2003, V93, P3102 CAPLUS
- (4) Buse, K; Appl Phys A 1993, V57, P161
- (5) Buse, K; J Opt Soc Am B 1993, V10, P1266 CAPLUS
- (6) Buse, K; Opt Mater 1995, V4, P237 CAPLUS
- (7) Eichler, H; Laser Induced Dynamic Gratings 1986
- (8) Imbrock, J; J Opt Soc Am B 1999, V16, P1392 CAPLUS
- (9) Kogelnik, H; Bell Syst Tech J 1969, V48, P2909
- (10) von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS
- (11) Vormann, H; Solid State Commun 1984, V49, P843 CAPLUS

L5 ANSWER 8 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2001:395717 CAPLUS <<LOGINID::20061206>>

DN 135:160095

ED Entered STN: 01 Jun 2001

TI Photorefractive multichannel correlator based on ***stoichiometric***
LiTaO3

AU Ryf, R.; Montemezzani, G.; Gunter, P.; Furukawa, Y.; Kitamura, K.

CS Nonlinear Optics Laboratory, Institute of Quantum Electronics, Swiss
Federal Institute of Technology, ETH Honggerberg, Zurich, 8093, Switz.

SO Applied Physics B: Lasers and Optics (2001), 72(6), 737-742

CODEN: APBOEM; ISSN: 0946-2171

PB Springer-Verlag

DT Journal

LA English

CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

Section cross-reference(s): 73

AB The authors demonstrate a Vander Lugt type correlator based on
photorefractive ***stoichiometric*** LiTaO3 as the vol. holog.
material. Accurate correlator output was obtained for binary
phase-modulated input images. The correlator is tested with binary
amplitude- and phase-modulated input images. Phase-modulated images show
a high-quality correlation, whereas amplitude-modulated images suffer in
part from a photorefractive self-focusing effect. Using 100 previously
stored holograms as ***filters***, a rate of 10000 correlations/s are
demonstrated. A paraxial theor. anal. of the correlator, giving analytic
expressions for the shift invariance, is also described.

ST photorefractive multichannel correlator ***stoichiometric***

lithium ***tantalate*** holog

IT Holography

Photorefractive materials

(photorefractive multichannel correlator based on

stoichiometric LiTaO3)

IT 12031-66-2, Lithium tantalum oxide (LiTaO3)

RL: DEV (Device component use); PRP (Properties); USES (Uses)

(photorefractive multichannel correlator based on

stoichiometric LiTaO3)

RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Bashaw, M; J Opt Soc Am B 1994, V11, P1820 CAPLUS
- (2) Belov, M; Opt Lett 1991, V16, P327
- (3) Biaggio, I; Opt Lett 1994, V19, P1765 CAPLUS
- (4) Burr, G; Appl Opt 1999, V38, P6779
- (5) Curtis, K; Opt Lett 1993, V18, P1001
- (6) Duelli, M; Opt Lett 1997, V22, P87

- (7) Furukawa, Y; J Cryst Growth 1999, V197, P889 CAPLUS
- (8) Furukawa, Y; Jpn J Appl Phys I 1999, V38, P1816 CAPLUS.
- (9) Gu, C; J Opt Soc Am A 1992, V9, P1978
- (10) Gu, C; J Opt Soc Am B 1995, V12, P861
- (11) Gu, C; Opt Commun 1992, V88, P309
- (12) Gunter, P; Photorefractive Materials and Their Applications I + II 1989, VI and II
- (13) Hofstadter, D; Godel, Escher, Bach:an eternal golden braid 1980
- (14) Jackson, J; Classical Electrodynamics 1975, P427
- (15) Lee, H; Opt Lett 1988, V13, P874 CAPLUS
- (16) Levene, M; Appl Opt 1999, V38, P394
- (17) Maniloff, E; Opt Lett 1992, V17, P961
- (18) Mok, F; Opt Lett 1993, V18, P915 CAPLUS
- (19) Saleh, B; Fundamentals of photonics 1991, P121
- (20) Sefler, G; Opt Eng 2000, V39, P260
- (21) Taketomi, Y; Opt Lett 1992, V17, P962
- (22) Vander Lugt, A; IEEE Trans Inf Theory IT 1964, V10, P139
- (23) Wen, Z; Opt Commun 1997, V135, P212 CAPLUS
- (24) Zozulya, A; Phys Rev A 1995, V51, P1520 CAPLUS

L5 ANSWER 9 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2000:317996 CAPLUS <<LOGINID::20061206>>

DN 133:65292

ED Entered STN: 16 May 2000

TI Breakthrough in ferroelectric single crystals for optical applications.
Control of nonstoichiometric defects

AU Kitamura, Kenji

CS 13th Lab. Group, Natl. Inst. for Res. in Inorg. Mater., 1-1 Namiki,
Tsukuba, 305-0044, Japan

SO Oyo Butsuri (2000), 69(5), 511-517

CODEN: OYBSA9; ISSN: 0369-8009

PB Oyo Butsuri Gakkai

DT Journal; General Review

LA Japanese

CC 73-0 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)

Section cross-reference(s): 75

AB A review with 37 refs. LiNbO3 and LiTaO3 single crystals are attractive
materials for optical modulators, optical switches, integrated EO devices,
frequency conversion devices, digital holograms among other devices.
However, the conventional crystals which are com. used for SAW

filters have some serious problems in their optical applications.

These com. available crystals contain a huge no. of nonstoichiometric
defects because of the restriction in the ordinary crystal growth method.

The authors grew near- ***stoichiometric*** crystals by a novel crystal
growth method and compared various properties of conventional and near-

stoichiometric crystals. The near- ***stoichiometric***
crystals exhibiting excellent properties can lead to a breakthrough in
solving the material problems for optical applications. The authors
summarize their fundamental properties with the conviction that
nonstoichiometry control in such materials plays a key role in property
tailoring.

ST review ***lithium*** niobate ***tantarate*** nonstoichiometric
crystal defect

IT Crystal growth

Nonlinear optical materials

(breakthrough in ferroelec. single crystals for optical applications)

IT Optical instruments

(nonlinear; breakthrough in ferroelec. single crystals for optical
applications)

IT Crystal defects

(nonstoichiometric; breakthrough in ferroelec. single crystals for
optical applications)

IT 12031-63-9, Lithium niobate (LiNbO3) 12031-66-2, ***Lithium***

tantarate (LiTaO3)

RL: DEV (Device component use); PRP (Properties); USES (Uses)

(breakthrough in ferroelec. single crystals for optical applications)

L5 ANSWER 10 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1996:484873 CAPLUS <<LOGINID::20061206>>

DN 125:154809

ED Entered STN: 15 Aug 1996

TI Preparation of heteroepitaxial LiTaO3 thin films grown by a KrF excimer laser ablation method
 AU Kim, S. W.; Yang, C. J.
 CS Res. Inst. of Industrial Sci. and Technol., S. Korea
 SO RIST Yongu Nonmun (1996), 10(2), 217-224
 CODEN: RYNOEQ; ISSN: 1225-486X
 PB Research Institute of Industrial Science & Technology
 DT Journal
 LA Korean
 CC 75-1 (Crystallography and Liquid Crystals)
 AB LiTaO3 films were successfully grown on Al2O3 single crystal substrate by KrF excimer laser ablation using ***stoichiometric*** LiTaO3 target. The characteristics of LiTaO3 thin films were studied as function of substrate temp., O partial pressure, and laser energy d. With increasing the substrate temp. and O partial pressure, the deposition rate was lowered. However the deposition rate increases with increasing the lasing energy d. The phys. characteristics of the films were highly depended on the deposition condition. Smooth heteroepitaxial LiTaO3 films were able to grown up to 1.2 .mu.m which can be applied to a practical use such as SAW ***filter***. An optimized parameters in this study were 700.degree. substrate temp., 200 mtorr O partial pressure, and 1.62-2.85 J/cm2 laser energy d. for the LiTaO3 epitaxial films.
 ST epitaxy ***lithium*** ***tantalate*** laser ablation
 IT Epitaxy
 (prepn. of heteroepitaxial ***lithium*** ***tantalate*** thin films grown by laser ablation method)
 IT Ablation
 (laser-induced, prepn. of heteroepitaxial ***lithium*** ***tantalate*** thin films grown by laser ablation method)
 IT 12031-66-2, ***Lithium*** ***tantalate*** (LiTaO3)
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (prepn. of heteroepitaxial ***lithium*** ***tantalate*** thin films grown by laser ablation method)
 L5 ANSWER 11 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 1994:310817 CAPLUS <<LOGINID::20061206>>
 DN 120:310817
 ED Entered STN: 11 Jun 1994
 TI Epitaxial growth of LiNbO3 optical-waveguide films by excimer laser ablation
 AU Haruna, M.; Tsutsumi, J.; Segawa, Y.; Nishihara, H.
 CS Fac. Eng., Osaka Univ., Suita, 565, Japan
 SO Proceedings of SPIE-The International Society for Optical Engineering (1994), 2045(Laser-Assisted Fabrication of Thin Films and Microstructures), 133-40
 CODEN: PSISDG; ISSN: 0277-786X
 DT Journal
 LA English
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 75
 AB The epitaxial growth of LiNbO3 films by the ArF excimer laser ablation forms electrooptic (EO) thin-film waveguides on Al2O3 and LiTaO3 c-plates. The x-ray diffraction spectra indicate that the resulting films are oriented along the c axis when a Li-rich LiNbO3 ceramics is used as the target. The chem. compn. of the film was evaluated by measurement of the extraordinary index ne from the guided-wave excitation with prism couplers. ***Stoichiometric*** films are grown on both Al2O3 and LiTaO3 c-plates by changing the content of excess Li2O in the target. The propagation loss of 6 dB/cm was attained in the thin-film waveguide on LiTaO3 c-plate. The electrooptical effect of the film was roughly estd. by fabrication and characterization of a light deflector with an EO ***grating***.
 ST lithium niobate waveguide laser ablation epitaxy
 IT Laser radiation
 (epitaxial growth of lithium niobate optical waveguide films by ablation using)
 IT Electrooptical effect
 (in lithium niobate optical waveguide films grown by excimer laser ablation)
 IT Epitaxy
 (of lithium niobate optical waveguide films by excimer laser ablation)

IT Ablation
(laser-induced, epitaxial growth of lithium niobate optical waveguide
films by)

IT Waveguides
(optical, lithium niobate films, epitaxial growth of, by ablation)

IT 12031-63-9D, Lithium niobate (LiNbO3), lithium-excess
RL: USES (Uses)
(epitaxial growth of lithium niobate optical waveguide films by excimer
laser ablation of)

IT 1313-96-8, Niobium pentoxide
RL: USES (Uses)
(epitaxial growth of lithium niobate optical waveguide films by excimer
laser ablation of lithium carbonate sintered mixt. with)

IT 12057-24-8, Lithium oxide (Li2O), uses
RL: USES (Uses)
(epitaxial growth of lithium niobate optical waveguide films by excimer
laser ablation of lithium niobate contg.)

IT 554-13-2, Lithium carbonate
RL: USES (Uses)
(epitaxial growth of lithium niobate optical waveguide films by excimer
laser ablation of niobium pentoxide sintered mixt. with)

IT 1344-28-1, Alumina, uses 12031-66-2, ***Lithium*** ***tantalate***
(LiTaO3)
RL: USES (Uses)
(epitaxial growth of lithium niobate optical waveguide films on, by
excimer laser ablation)

IT 12031-63-9, Lithium niobate (LiNbO3)
RL: USES (Uses)
(optical waveguide films, epitaxial growth of, by excimer laser
ablation)

=> d his

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FILE 'CAPLUS' ENTERED AT 07:51:17 ON 06 DEC 2006

L1 3918 S ((LITHIUM(3A)TANTALATE) OR LITA03)
L2 207 S L1 AND STOICHIOMETRIC
L3 8 S L2 AND ((TWO(4W) (WAVELENGTH OR COLOR OR PHOTON)) OR NONVOLATI
L4 10 S L2 AND (((TWO OR 2) (5A) (WAVELENGTH OR COLOR OR PHOTON)) OR NO
L5 11 S L2 AND (FILTER OR GRATING)

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multiple databases
NEWS 16 OCT 23 The Derwent World Patents Index suite of databases on STN
has been enhanced and reloaded
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to 50,000
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L1 7828 (LITHIUM(5A) TANTALATE) OR LITAO3

=> s l1 and stoichiomet?

L2 508 L1 AND STOICHIOMET?

=> s l2 and gating

L3 7 L2 AND GATING

=> s l2 and gated

L4 1 L2 AND GATED

=> s l3 or l4

L5 8 L3 OR L4

=> d all 1-8

L5 ANSWER 1 OF 8 INSPEC (C) 2006 IET on STN

AN 2004:8195502 INSPEC DN A2005-01-7820W-001; B2005-01-4110-024 <<LOGINID::20061206>>

TI Two-color photorefractive properties in near- ***stoichiometric***

lithium ***tantalate*** crystals

AU Youwen Liu; Kitamura, K.; Takekawa, S.; Nakamura, M.; (Adv. Mater. Lab.,
Nat. Inst. for Mater. Sci., Ibaraki, Japan), Furukawa, Y.; Hatano, H.

SO Journal of Applied Physics (15 June 2004), vol.95, no.12, p. 7637-44, 37
refs.

CODEN: JAPIAU, ISSN: 0021-8979

SICI: 0021-8979(20040615)95:12L:7637:CPPN;1-3

Price: 0021-8979/2004/95(12)/7637(8)/\$22.00

Doc.No.: S0021-8979(04)02212-1

Published by: AIP, USA

DT Journal

TC Experimental

CY United States

LA English

AB The two-color photorefractive properties in undoped as-grown near-

stoichiometric ***lithium*** ***tantalate*** crystals

were investigated, where a near-infrared laser and a cw ultraviolet beam
were used for writing and ***gating***, respectively. The key

parameters in characterizing two-color photorefractive effect,
light-induced absorption change, two-color sensitivity, refractive index

change, readout characteristics, and dark decay were measured by changing
intensities of ***gating*** and writing beams, wavelengths of

gating and writing beams for the crystals with different near-

stoichiometric crystal compositions, and proton concentrations.

The results showed that there exists an optimal crystal composition of
around 49.65% for both sensitivity and refractive index change together

with moderate lifetime of small polarons. The achieved refractive index
change was on the order of 10⁻⁴, and the obtained maximum sensitivity was

0.18 cm/J. The extrapolated lifetime of holograms at room temperature in
the crystals without observable OH⁻ absorption was longer than 50 yr. The

measurements of UV-induced absorption change at room temperature and low
temperature of 77.3 K suggested that the unintentional impurity of Fe and

intrinsic defects were responsible for two-color photorefractive effect.

The excellent two-color photorefractive properties of undoped as-grown

near- ***stoichiometric*** ***lithium*** ***tantalate***

crystals were discussed based on this mechanism and the physical

properties of ***lithium*** ***tantalate***

CC A7820W Other optical properties of condensed matter; A7820D Optical constants and parameters (condensed matter); A6480E Stoichiometry and homogeneity; A4270G Light-sensitive materials; A7840H Visible and ultraviolet spectra of other nonmetals; A7830G Infrared and Raman spectra in inorganic crystals; A6170 Defects in crystals; B4110 Optical materials

CT crystal defects; infrared spectra; iron; lithium compounds; photorefractive effect; polarons; refractive index; ***stoichiometry***; ultraviolet spectra

ST photorefractive properties; stoichiometric lithium tantalate crystals; near infrared laser; cw ultraviolet beam; photorefractive effect; light induced absorption change; refractive index change; dark decay; two color sensitivity; writing beams; proton concentrations; polarons lifetime; room temperature; UV induced absorption change; intrinsic defects; physical properties; 293 to 298 K; 77.3 K; 50 yr; LiTaO3:Fe

CHI LiTaO3:Fe ss, LiTaO3 ss, TaO3 ss, Fe ss, Li ss, O3 ss, Ta ss, O ss, Fe el, Fe dop

PHP temperature 2.93E+02 to 2.98E+02 K; temperature 7.73E+01 K; time 1.6E+09 s

ET Fe*O-Ta; Fe sy 3; sy 3; O sy 3; Ta sy 3; TaO3:Fe; Fe doping; doped materials; Ta cp; cp; O cp; O-Ta; TaO; Fe; Li*O-Ta; Li sy 3; LiTaO; Li cp; Li; O; Ta; H*O; OH; OH-; H cp; OH in 1; in 1

L5 ANSWER 2 OF 8 INSPEC (C) 2006 IET on STN

AN 2004:8080300 INSPEC DN A2004-20-4240-008; B2004-10-4350-029 <<LOGINID::20061206>>

TI Two-color holographic recording in nondoped near- ***stoichiometric*** ***lithium*** ***tantalate*** with continuous-wave lasers

AU Youwen Liu; Kitamura, K.; Takekawa, S.; Nakamura, M.; Furukawa, Y.; (Adv. Mater. Laboratory & Nanomaterials Laboratory, Nat. Inst. for Mater. Sci., Ibaraki, Japan), Hatano, H.

SO Ninth International Conference on Photorefractive Effects, Materials and Devices (Trends in Optics and Photonics Series Vol.87), 2003, p. 642-8 of xv+740 pp., 18 refs.
Editor(s): Delaye, P.; Denz, C.; Mager, L.; Montemezzani, G.
ISBN: 1 55752 755 5
Published by: Optical Soc. of America, Washington, DC, USA
Conference: Ninth International Conference on Photorefractive Effects, Materials and Devices, La Colle sur Loup, France, 17-21 June 2003

DT Conference; Conference Article

TC Experimental

CY United States

LA English

AB Nonvolatile two-color holographic recording was demonstrated in as-grown nondoped SLT crystals with a high sensitivity of 0.086 cm/J with a ***gating*** intensity of 1 W/cm2 at 350 nm, a large refractive index change of as much as 1.times.10-4, a high resistance to IR erasure and a long hologram lifetime of five years. Dependences of two-color sensitivity and dynamic range on ***gating*** and writing intensities are presented. The sensitivity can be further enhanced using writing and ***gating*** beams of shorter wavelength without sacrificing readout nonvolatility. 50 plane-wave holograms are angle-multiplexed with M/# of 0.95

CC A4240H Holographic recording; A4280T Optical storage and retrieval; A4270G Light-sensitive materials; A6480E Stoichiometry and homogeneity; A7820W Other optical properties of condensed matter; A7820D Optical constants and parameters (condensed matter); B4350 Holography; B4120 Optical storage and retrieval; B4110 Optical materials

CT holographic storage; lithium compounds; photorefractive effect; photorefractive materials; refractive index; ***stoichiometry***

ST two-color holographic recording; near-stoichiometric lithium tantalate; continuous-wave lasers; SLT crystals; refractive index change; hologram lifetime; two-color sensitivity; gating intensity; writing intensity; angle multiplexing; 350 nm; LiTaO3

CHI LiTaO3 ss, TaO3 ss, Li ss, O3 ss, Ta ss, O ss

PHP wavelength 3.5E-07 m

ET O-Ta; TaO3; Ta cp; cp; O cp; TaO; Li; O; Ta

L5 ANSWER 3 OF 8 INSPEC (C) 2006 IET on STN

AN 2003:7659434 INSPEC DN A2003-15-4240-001; B2003-07-4350-029 <<LOGINID::20061206>>

TI Nonvolatile two-color holographic recording in nondoped near- ***stoichiometric*** ***lithium*** ***tantalate*** crystals with continuous-wave lasers

AU Youwen Liu; Kitamura, K.; Takekawa, S.; Nakamura, M.; Furukawa, Y.;

(Adv. Mater. Lab., Nat. Inst. for Mater. Sci., Ibaraki, Japan), Hatano, H.
SO Applied Physics Letters (16 June 2003), vol.82, no.24, p. 4218-20, 17 refs.
CODEN: APPLAB, ISSN: 0003-6951
SICI: 0003-6951(20030616)82:24L:4218:NCHR;1-W
Price: 01/03/6951/2003/82(24)/4218(3)/\$19.00
Doc.No.: S0003-6951(03)03124-3
Published by: AIP, USA
DT Journal
TC Practical; Experimental
CY United States
LA English
AB Nonvolatile holograms have been recorded in nondoped near-
stoichiometric ***LiTaO3*** crystals by use of a near
infrared (IR) laser for writing and a ultraviolet beam as a
gating source. This material exhibits good overall two-color
holographic recording characteristics including a high sensitivity of
0.086 cm/J with a ***gating*** intensity of 1 W/cm² at 350 nm, a
large refractive index change of as much as 1.times.10⁻⁴, a high
resistance to IR erasure, and a long hologram lifetime of five years. The
sensitivity can be further enhanced using writing and ***gating***
beams of a shorter wavelength without sacrificing readout nonvolatility
CC A4240H Holographic recording; A4280T Optical storage and retrieval;
A4240E Holographic optical elements; holographic gratings; A4265M
Multiwave mixing; A7820W Other optical properties of condensed matter;
A7820D Optical constants and parameters (condensed matter); B4350
Holography; B4120 Optical storage and retrieval; B4340F Optical phase
conjugation and multiwave mixing
CT holographic storage; lithium compounds; photorefractive effect;
refractive index
ST nonvolatile two-color holographic recording; continuous-wave lasers;
nondoped near-stoichiometric LiTaO3 crystals; near infrared laser;
ultraviolet beam; writing source; gating source; large refractive index
change; 350 nm; LiTaO3
CHI LiTaO3 ss, TaO3 ss, Li ss, O3 ss, Ta ss, O ss
PHP wavelength 3.5E-07 m
ET Li*O-Ta; Li sy 3; sy 3; O sy 3; Ta sy 3; LiTaO3; Li cp; cp; Ta cp; O cp;
O-Ta; TaO3; TaO; Li; O; Ta
L5 ANSWER 4 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:734145 CAPLUS <<LOGINID::20061206>>
DN 141:215455
ED Entered STN: 09 Sep 2004
TI Nonvolatile photorefractive memory
AU Hatano, Hideki; Liu, Youwen; Kitamura, Kenji
CS Corporate R&D Laboratories Pioneer, Japan
SO Optronics (2004), 272, 111-117
CODEN: OPUTDD; ISSN: 0286-9659
PB Oputoronikususha
DT Journal; General Review
LA Japanese
CC 74-0 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)
Section cross-reference(s): 73
AB A review of of the nonvolatile photorefractive recording process using the
photon- ***gated*** two-color holog. in LiNbO3 and ***LiTaO3***,
which supersedes the longstanding issue of destructive readout.
Substantial progress has been made in recent years by the development of
crystal growth and energy-band tailoring technologies on near-
stoichiometric single crystals. The best performance was obtained
in near- ***stoichiometric*** ***LiTaO3***.
ST review nonvolatile photorefractive memory
IT Memory effect
(optical, photorefractive; nonvolatile photorefractive memory)
L5 ANSWER 5 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:463034 CAPLUS <<LOGINID::20061206>>
DN 141:181874
ED Entered STN: 09 Jun 2004
TI Two-color photorefractive properties in near- ***stoichiometric***
lithium ***tantarate*** crystals

AU Liu, Youwen; Kitamura, Kenji; Takekawa, Shunji; Nakamura, Masaru;
 Furukawa, Yasunori; Hatano, Hideki
 CS Advanced Materials Laboratory, National Institute for Materials Science,
 1-1 Namiki, Tsukuba, Ibaraki, 305-0044, Japan
 SO Journal of Applied Physics (2004), 95(12), 7637-7644
 CODEN: JAPIAU; ISSN: 0021-8979
 PB American Institute of Physics
 DT Journal
 LA English
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)
 Section cross-reference(s): 73, 76
 AB The two-color photorefractive properties in undoped as-grown near-
 stoichiometric ***lithium*** ***tantalate*** crystals were
 investigated, where a near-IR laser and a cw UV beam were used for writing
 and ***gating***, resp. The key parameters in characterizing
 two-color photorefractive effect, light-induced absorption change,
 two-color sensitivity, refractive index change, readout characteristics,
 and dark decay were measured by changing intensities of ***gating***
 and writing beams, wavelengths of ***gating*** and writing beams for
 the crystals with different near- ***stoichiometric*** crystal compns.,
 and proton concns. The results showed that there exists an optimal
 crystal compn. of around 49.65% for both sensitivity and refractive index
 change together with moderate lifetime of small polarons. The achieved
 refractive index change was on the order of 10^{-4} , and the obtained max.
 sensitivity was 0.18 cm/J. The extrapolated lifetime of holograms at room
 temp. in the crystals without observable OH- absorption was longer than 50
 yr. The measurements of UV-induced absorption change at room temp. and
 low temp. of 77.3 K suggested that the unintentional impurity of Fe and
 intrinsic defects were responsible for two-color photorefractive effect.
 The excellent two-color photorefractive properties of undoped as-grown
 near- ***stoichiometric*** ***lithium*** ***tantalate***
 crystals were discussed based on this mechanism and the phys. properties
 of ***lithium*** ***tantalate***.
 ST two color photorefractive near ***stoichiometric*** ***lithium***
 tantalate holog
 IT Refractive index
 (changes of near- ***stoichiometric*** ***lithium***
 tantalate crystals)
 IT Curie temperature (ferroelectric)
 IR spectra
 Optical recording
 UV and visible spectra
 (of near- ***stoichiometric*** ***lithium*** ***tantalate***
 crystals)
 IT Polaron
 (polaron lifetime of near- ***stoichiometric*** ***lithium***
 tantalate crystals)
 IT Holography
 (two-color holog. recording in near- ***stoichiometric***
 lithium ***tantalate*** crystals)
 IT Crystal defects
 Photorefractive effect
 (two-color photorefractive properties in near- ***stoichiometric***
 lithium ***tantalate*** crystals)
 IT 7439-96-5, Manganese, properties
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (two-color photorefractive properties in near- ***stoichiometric***
 lithium ***tantalate*** crystals)
 IT 7439-89-6, Iron, properties
 RL: OCU (Occurrence, unclassified); PRP (Properties); OCCU (Occurrence)
 (two-color photorefractive properties in near- ***stoichiometric***
 lithium ***tantalate*** crystals)
 IT 12031-66-2D, ***Lithium*** ***tantalate*** (***LiTaO3***),
 near ***stoichiometric***
 RL: PRP (Properties)
 (two-color photorefractive properties in near- ***stoichiometric***
 lithium ***tantalate*** crystals)

RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD

- RE
- (1) Amodei, J; Appl Phys Lett 1971, V18, P540 CAPLUS
 - (2) Bai, Y; Phys Rev Lett 1997, V78, P2944 CAPLUS

- (3) Buse, K; Opt Mater (Amsterdam, Neth) 1995, V4, P237 CAPLUS
- (4) Coufal, H; Holographic Data Storage 2000
- (5) de Miguel-Sanz, E; Appl Phys B: Lasers Opt 2000, V70, P379 CAPLUS
- (6) Guenther, H; Appl Opt 1998, V37, P7611 CAPLUS
- (7) Gunter, P; Photorefractive Materials and their Applications, Topics in Applied Physics 1988, V61
- (8) Hesselink, L; Science 1998, V282, P1089 CAPLUS
- (9) Imbrock, J; Opt Lett 1999, V24, P1302 CAPLUS
- (10) Iyi, N; J Solid State Chem 1992, V101, P340 CAPLUS
- (11) Kappers, L; Phys Rev B 1985, V31, P6792 CAPLUS
- (12) Kitamura, K; J Cryst Growth 1992, V116, P327 CAPLUS
- (13) Klauer, S; Phys Rev B 1992, V45, P2786 CAPLUS
- (14) Kogelnik, H; Bell Syst Tech J 1969, V48, P2909
- (15) Kovacs, L; J Phys Chem Solids 1991, V52, P797 CAPLUS
- (16) Kratzig, E; Appl Phys 1978, V15, P133
- (17) Lande, D; Opt Lett 1997, V22, P1722 CAPLUS
- (18) Lee, M; Appl Phys Lett 2000, V76, P1653 CAPLUS
- (19) Lee, M; J Appl Phys 2001, V89, P5311 CAPLUS
- (20) Liu, L; Photorefractive Effects, Materials, and Devices, Vol 87 of OSA Proceedings Series 2003, P626 CAPLUS
- (21) Liu, Y; Appl Phys Lett 2002, V81, P2686 CAPLUS
- (22) Liu, Y; Appl Phys Lett 2003, V82, P4218 CAPLUS
- (23) Matthews, P; J Appl Phys 1992, V72, P2562 CAPLUS
- (24) Micheron, F; Appl Phys Lett 1972, V20, P79 CAPLUS
- (25) Nakamura, M; J Cryst Growth 2002, V245, P267 CAPLUS
- (26) Nee, I; J Opt Soc Am B 2003, V20, P1593 CAPLUS
- (27) Psaltis, D; Science 2002, V298, P1359 CAPLUS
- (28) Rakuljic, G; Opt Lett 1993, V18, P459
- (29) Schirmer, O; J Phys Chem Solids 1991, V52, P185 CAPLUS
- (30) Sweeney, K; Appl Phys Lett 1983, V43, P336 CAPLUS
- (31) Tsuya, H; Jpn J Appl Phys 1973, V12, P1896 CAPLUS
- (32) Von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS
- (33) Von der Linde, D; J Appl Phys 1976, V47, P217 CAPLUS
- (34) Wevering, S; J Opt Soc Am B 2001, V18, P472 CAPLUS
- (35) Wierschem, M; Phys Status Solidi B 1999, V215, PR7 CAPLUS
- (36) Yang, Y; Appl Phys Lett 2001, V78, P4076 CAPLUS
- (37) Yang, Y; J Opt Soc Am B 2003, V20, P1491 CAPLUS

L5 ANSWER 6 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:397282 CAPLUS <<LOGINID::20061206>>

DN 142:143937

ED Entered STN: 17 May 2004

TI Nonvolatile holographic storage in near- ***stoichiometric***

LiTaO3 crystals

AU Liu, Y.; Kitamura, K.; Takekawa, S.; Nakamura, M.; Furukawa, Y.; Hatano, H.

CS Nanomaterials Laboratory, National Institute for Materials Science, Tsukuba, Ibaraki, 305-0044, Japan

SO Trends in Optics and Photonics (2003), 88 (Conference on Lasers and Electro-Optics (CLEO), 2003), CWA25/1-CWA25/2
CODEN: TOPRBS

PB Optical Society of America

DT Journal

LA English

CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

AB Nonvolatile holograms have been recorded in non doped near-
stoichiometric ***LiTaO3*** crystal of 2 mm-thickness. High
sensitivity of 0.067 cm/J and large M/# of 1.59 are achieved
simultaneously for ***gating*** intensity of 0.31 W/cm2 and writing
intensity of 12.8 W/cm2.

ST nonvolatile holog storage near ***stoichiometric*** ***lithium***
tantalate crystal; holog recording near ***stoichiometric***
lithium ***tantalate*** crystal

IT Holographic recording materials
Holography

(nonvolatile holog. storage in near- ***stoichiometric***
LiTaO3 crystals)

IT 12031-66-2D, ***Lithium*** ***tantalate*** (***LiTaO3***),
near- ***stoichiometric***

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)

(nonvolatile holog. storage in near- ***stoichiometric***

LiTaO3 crystals)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Guenther, H; Appl Opt 1998, V37, P7611 CAPLUS
- (2) Hesselink, L; Science 1998, V282, P1089 CAPLUS
- (3) Imbrock, J; Opt Lett 1999, V24, P1302 CAPLUS
- (4) Liu, Y; Appl Phys Lett 2002, V81, P2686 CAPLUS

L5 ANSWER 7 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2003:682977 CAPLUS <<LOGINID::20061206>>

DN 140:189865

ED Entered STN: 02 Sep 2003

TI Two-color holographic recording in nondoped near- ***stoichiometric***
lithium ***tantalate*** with continuous-wave lasers

AU Liu, Youwen; Kitamura, Kenji; Takekawa, Shunji; Nakamura, Masaru;
Furukawa, Yasunori; Hatano, Hideki

CS Advanced Materials Laboratory and Nanomaterials Laboratory, National
Institute for Materials Science, Tsukuba, Ibaraki, 305-0044, Japan

SO Trends in Optics and Photonics (2003), 87(Photorefractive Effects,
Materials, and Devices), 642-648

CODEN: TOPRBS

PB Optical Society of America

DT Journal

LA English

CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

AB Nonvolatile two-color holog. recording was demonstrated in as-grown
nondoped SLT crystals with a high sensitivity of 0.086 cm/J with a
gating intensity of 1 W/cm² at 350 nm, a large refractive index
change of as much as 1.times.10⁻⁴, a high resistance to IR erasure and a
long hologram lifetime of five years. Dependences of two-color
sensitivity and dynamic range on ***gating*** and writing intensities
are presented. The sensitivity can be further enhanced using writing and
gating beams of shorter wavelength without sacrificing readout
nonvolatility. 50 Plane-wave holograms are angle-multiplexed with M/# of
0.95.

ST nonvolatile two color holog recording ***lithium*** ***tantalate***
crystal

IT Holographic recording materials

Holography

(nonvolatile two-color holog. recording in as-grown nondoped

lithium ***tantalate*** using continuous-wave lasers)

IT Holographic memory devices

(vol.; nonvolatile two-color holog. recording in as-grown nondoped

lithium ***tantalate*** using continuous-wave lasers in
relation to)

IT 12031-66-2, ***Lithium*** ***tantalate*** (***LiTaO3***)

RL: PEP (Physical, engineering or chemical process); PYP (Physical
process); PROC (Process)

(nonvolatile two-color holog. recording in as-grown nondoped

lithium ***tantalate*** using continuous-wave lasers)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; Holographic Data Storage 2000
- (2) Anon; Photorefractive Materials and Their Applications I 1988, V61
- (3) Bai, Y; Phys Rev Lett 1997, V78, P2944 CAPLUS
- (4) Buse, K; Nature 1998, V393, P665 CAPLUS
- (5) Furukawa, Y; J Crystal Growth 1999, V197, P889 CAPLUS
- (6) Guenther, H; Appl Opt 1998, V37, P7611 CAPLUS
- (7) Hesselink, L; Science 1998, V282, P1089 CAPLUS
- (8) Imbrock, J; Opt Lett 1999, V24, P1302 CAPLUS
- (9) Kappers, L; Phys Rev B 1985, V31, P6792 CAPLUS
- (10) Kogelnik, H; Bell Syst Tech J 1969, V48, P2909
- (11) Kratzig, E; Appl Phys 1978, V15, P133
- (12) Liu, Y; Appl Phys Lett 2002, V81, P2686 CAPLUS
- (13) Liu, Y; Opt Lett 2000, V25, P908 CAPLUS
- (14) Mok, F; Opt Lett 1996, V21, P896
- (15) Nakamura, M; J Crystal Growth 2002, V245, P267 CAPLUS
- (16) Schirmer, O; J Phys Chem Solids 1991, V52, P185 CAPLUS
- (17) von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS
- (18) Wevering, S; J Opt Soc Am B 2001, V18, P472 CAPLUS

L5 , ANSWER 8 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 2003:458344 CAPLUS <<LOGINID::20061206>>
 DN 139:157314
 ED Entered STN: 16 Jun 2003
 TI Nonvolatile two-color holographic recording in nondoped near-
 stoichiometric ***lithium*** ***tantalate*** crystals with
 continuous-wave lasers
 AU Liu, Youwen; Kitamura, Kenji; Takekawa, Shunji; Nakamura, Masaru;
 Furukawa, Yasunori; Hatano, Hideki
 CS Advanced Materials Laboratory and Nanomaterials Laboratory, National
 Institute for Materials Science, 1-1 Namiki, Tsukuba, Ibaraki, 305-0044,
 Japan
 SO Applied Physics Letters (2003), 82(24), 4218-4220
 CODEN: APPLAB; ISSN: 0003-6951
 PB American Institute of Physics
 DT Journal
 LA English
 CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)
 AB Nonvolatile holograms have been recorded in nondoped near-
 stoichiometric ***LiTaO3*** crystals by use of a near-IR laser
 for writing and a UV beam as a ***gating*** source. This material
 exhibits good overall two-color holog. recording characteristics including
 a high sensitivity of 0.086 cm/J with a ***gating*** intensity of 1
 W/cm² at 350 nm, a large refractive index change of as much as
 1.times.10⁻⁴, a high resistance to IR erasure, and a long hologram
 lifetime of five years. The sensitivity can be further enhanced using
 writing and ***gating*** beams of a shorter wavelength without
 sacrificing readout nonvolatility.
 ST nonvolatile two color holog recording ***stoichiometric***
 lithium ***tantalate*** crystal
 IT Holography
 (nonvolatile two-color holog. recording in nondoped near-
 stoichiometric ***lithium*** ***tantalate*** crystals
 with continuous-wave)
 IT Holographic recording materials
 (nonvolatile two-color holog. recording in nondoped near-
 stoichiometric ***lithium*** ***tantalate*** crystals
 with continuous-wave lasers)
 IT 12031-66-2, ***Lithium*** ***tantalate*** (***LiTaO3***)
 RL: PEP (Physical, engineering or chemical process); PYP (Physical
 process); PROC (Process)
 (nonvolatile two-color holog. recording in nondoped near-
 stoichiometric ***lithium*** ***tantalate*** crystals
 with continuous-wave lasers)
 RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE
 (1) Bai, Y; Phys Rev Lett 1997, V78, P2944 CAPLUS
 (2) Bordui, P; J Appl Phys 1995, V78, P4647 CAPLUS
 (3) Buse, K; Nature (London) 1998, V393, P665 CAPLUS
 (4) Coufal, H; Holographic Data Storage 2000
 (5) Furukawa, Y; J Cryst Growth 1999, V197, P889 CAPLUS
 (6) Guenther, H; Appl Opt 1998, V37, P7611 CAPLUS
 (7) Hesselink, L; Science (Washington, DC, U S) 1998, V282, P1089 CAPLUS
 (8) Imbrock, J; Opt Lett 1999, V24, P1302 CAPLUS
 (9) Kappers, L; Phys Rev B 1985, V31, P6792 CAPLUS
 (10) Kogelnik, H; Bell Syst Tech J 1969, V48, P2909
 (11) Kratzig, E; Appl Phys 1978, V15, P133
 (12) Liu, Y; Appl Phys Lett 2002, V81, P2686 CAPLUS
 (13) Liu, Y; Opt Lett 2000, V25, P908 CAPLUS
 (14) Mok, F; Opt Lett 1996, V21, P896
 (15) Schirmer, O; J Phys Chem Solids 1991, V52, P185 CAPLUS
 (16) Von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS
 (17) Wevering, S; J Opt Soc Am B 2001, V18, P472 CAPLUS

=> d his

(FILE 'HOME' ENTERED AT 08:00:29 ON 06 DEC 2006)

FILE 'INSPEC, CAPLUS' ENTERED AT 08:00:40 ON 06 DEC 2006

L1 7828 S (LITHIUM(5A)TANTALATE) OR LITAO3
L2 508 S L1 AND STOICHIOMET?
L3 7 S L2 AND GATING
L4 1 S L2 AND GATED
L5 8 S L3 OR L4

=> s l1 and hologra?

L6 178 L1 AND HOLOGRA?

=> s l6 and stable

L7 1 L6 AND STABLE

=> s l6 and volatile

L8 0 L6 AND VOLATILE

=> s l6 and volatile

L9 2 L6 AND VOLATILE

=> s l6 and (wavelength or color)

L10 42 L6 AND (WAVELENGTH OR COLOR)

=> s l7 or l9

L11 3 L7 OR L9

=> d all 1-3

L11 ANSWER 1 OF 3 INSPEC (C) 2006 IET on STN
AN 2005:8295436 INSPEC DN A2005-07-4240-009; B2005-04-4350-007 <<LOGINID::20061206>>
TI Long lifetime of two-color nonvolatile ***holograms*** in
near-stoichiometric ***lithium*** ***tantalate*** crystals
AU Kitamura, K.; Youwen Liu; Takekawa, S.; (Adv. Mater. Lab., Nat. Inst.
for Mater. Sci., Ibaraki, Japan), Hatano, H.; Furukawa, Y.
SO Proceedings of the SPIE - The International Society for Optical
Engineering (2004), vol.5362, no.1, p. 107-10, 15 refs.
CODEN: PSISDG, ISSN: 0277-786X
SICI: 0277-786X(2004)5362:1L.107:LLCN;1-P
Price: 0277-786X/04/\$15.00
Published by: SPIE-Int. Soc. Opt. Eng, USA
Conference: Advanced Optical and Quantum Memories and Computing, San
Jose, CA, USA, 27-28 Jan. 2004
DT Conference; Conference Article; Journal
TC Practical; Experimental
CY United States
LA English
AB Two-color ***holography*** is an effective solution to the
volatile readout problem in volume ***holographic*** data
storage based on photorefractive materials. Popular materials for
two-color ***holography*** are reduced doped and nondoped
near-stoichiometric lithium niobate crystals. However, the lifetime at
room temperature is from several weeks to several months depending on the
reduction state of the material. Moreover, reductive treatment will
degrade the nonvolatility of two-color ***holograms***. The important
issue for two-color ***holography*** is how to increase the lifetime.
In this contribution, lifetimes of two-color nonvolatile
holograms recorded in as-grown near-stoichiometric
lithium niobate and ***tantalate*** crystals were compared by
extrapolating the high-temperature data. The dark-decay time constants
obey an Arrhenius dependence on absolute temperature and yield activity
energy of 1.06 eV around in all measured crystals. Lifetimes of
holograms in nondoped and slightly doped crystals depend on the
proton concentration. Lifetimes of ***hologram*** in ***lithium***
tantalate are one order of magnitude longer than those in lithium
niobate at the same proton concentration. The lifetime of two-color
holograms in lithium tantalite is longer than 20 years
CC A4240H Holographic recording; A4280T Optical storage and retrieval;
A4270Y Other optical materials; A6480E Stoichiometry and homogeneity;
B4350 Holography; B4120 Optical storage and retrieval; B4110 Optical
materials; B0290F Interpolation and function approximation (numerical
analysis)
CT extrapolation; ***holographic*** storage; lithium compounds; optical
materials; protons; stoichiometry; tantalum compounds
ST two-color nonvolatile hologram lifetime; near-stoichiometric lithium

tantalate crystal; hologram recording; proton concentration;
 extrapolation; dark decay time constant; Arrhenius dependence; OH-
 absorption; holographic data storage; 1.06 eV; LiTaO3
 CHI LiTaO3 ss, TaO3 ss, Li ss, O3 ss, Ta ss, O ss
 PHP electron volt energy 1.06E+00 eV
 ET O*Ta; TaO3; Ta cp; cp; O cp; TaO; Li; O; Ta

L11 ANSWER 2 OF 3 INSPEC (C) 2006 IET on STN
 AN 2002:7196285 INSPEC DN A2002-07-4265J-009; B2002-04-4340J-003 <<LOGINID::20061206>>
 TI ***Stable*** oscillating nonlinear beams in square-wave-biased-
 photorefractives
 AU Tosi-Beleffi, G.M.; Presi, M.; (Ist. Nazionale Fisica della Materia,
 Rome, Italy), DelRe, E.; Boschi, D.; Palma, C.
 SO Technical Digest. Summaries of papers presented at the Conference on
 Lasers and Electro-Optics. Postconference Technical Digest (IEEE Cat.
 No.01CH37170), 2001, p. 429-30 of 604+72 post deadline papers pp., 3
 refs.
 ISBN: 1 55752 662 1
 Published by: Opt. Soc. America, Washington, DC, USA
 Conference: CLEO 2001. Technical Digest. Summaries of papers presented at
 the Conference on Lasers and Electro-Optics. Postconference Technical
 Digest, Baltimore, MD, USA, 6-11 May 2001
 Sponsor(s): IEEE/Lasers & Electro-Opt. Soc.; OSA-Opt. Soc. America;
 Quantum Electron. Division of the Eur. Phys. Soc.; Opt. Soc. Japanese
 Quantum Electron. Joint Group
 DT Conference; Conference Article
 TC Experimental
 CY United States
 LA English
 AB Summary form only given. Optical micrometer sized beams in biased
 photorefractives self-trap in a transient regime, reaching steady-state
 by increasing the sample conductivity. We investigate a fundamentally
 different stabilization process connected to beam behaviour in a
 non-stationary external bias field. We study beam evolution in the
 presence of an alternating field in centrosymmetric potassium-
 lithium - ***tantalate*** -niobate (KLTN)
 CC A4265J Beam trapping, self focusing, thermal blooming, and related
 effects; A4265S Optical solitons; A4270G Light-sensitive materials;
 A7820J Electro-optical effects (condensed matter); B4340J Optical
 self-focusing and related effects; B4340S Optical solitons; B4110 Optical
 materials
 CT electro-optical effects; lithium compounds; optical self-focusing;
 optical solitons; photorefractive materials; potassium compounds
 ST centrosymmetric (K,Li)(Ta,Nb)O3; stable oscillating nonlinear beams;
 square-wave-biased-photorefractives; beam behaviour stabilization;
 nonstationary external bias field; beam evolution; alternating field;
 beam self-trapping process; slab solitons; beam charge separation;
 electro-holographic effects; electric field polarity; quadratic
 electro-optic response; KLiTaO3NbO3
 CHI KLiTaO3NbO3 ss, NbO3 ss, TaO3 ss, Li ss, Nb ss, O3 ss, Ta ss, K ss, O ss
 ET (K,Li); K r; K Li; Ta; Nb; Nb*O*Ta; Nb sy 3; sy 3; O sy 3; Ta sy 3;
 TaO3NbO3; Ta cp; cp; O cp; Nb cp; TaO3NbO; Nb*O; NbO; O*Ta; TaO; Li; O

L11 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 2005:1114096 CAPLUS <<LOGINID::20061206>>
 DN 145:113254
 ED Entered STN: 18 Oct 2005
 TI Long lifetime of two-color nonvolatile ***holograms*** in
 near-stoichiometric ***lithium*** ***tantalate*** crystals
 AU Kitamura, Kenji; Liu, Youwen; Takekawa, Shunji; Hatano, Hideki; Furukawa,
 Yasunori
 CS Adv. Mater. Lab., National Institute for Materials Science, 1-1 Namiki,
 Tsukuba, Ibaraki, 305-0044, Japan
 SO Proceedings of SPIE-The International Society for Optical Engineering
 (2004), 5362(Advanced Optical and Quantum Memories and Computing), 107-110
 CODEN: PSISDG; ISSN: 0277-786X
 PB SPIE-The International Society for Optical Engineering
 DT Journal
 LA English
 CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)
 AB Two-color ***holog*** . is an effective soln. to the ***volatile***

readout problem in vol. ***holog*** . data storage based on photorefractive materials. Popular materials for two-color ***holog***, are reduced doped and nondoped near-stoichiometric lithium niobate crystals. However, the lifetime at room temp. is from several weeks to several months depending on the redn. state of the material. Moreover, reductive treatment will degrade the nonvolatility of two-color ***holograms*** . The important issue for two-color ***holog*** . is how to increase the lifetime. In this contribution, lifetimes of two-color nonvolatile ***holograms*** recorded in as-grown near-stoichiometric ***lithium*** niobate and ***tantalate*** crystals were compared by extrapolating the high-temp. data. The dark-decay time consts. obey an Arrhenius dependence on abs. temp. and yield activity energy of 1.06 eV around in all measured crystals. Lifetimes of ***holograms*** in nondoped and slightly doped crystals depend on the proton concn. Lifetimes of ***hologram*** in ***lithium*** ***tantalate*** are one order of magnitude longer than those in lithium niobate at the same proton concn. The lifetime of two-color ***holograms*** in lithium tantalite is longer than 20 years.

ST long lifetime color nonvolatile ***holograms*** near stoichiometric ***lithium*** ***tantalate***

IT ***Holographic*** memory devices
 Holographic recording materials
 Photorefractive materials
 (long lifetime of two-color nonvolatile ***holograms*** in near-stoichiometric ***lithium*** ***tantalate*** crystals)

IT 12031-66-2, ***Lithium*** ***tantalate*** (***LiTaO3***)
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (long lifetime of two-color nonvolatile ***holograms*** in near-stoichiometric ***lithium*** ***tantalate*** crystals)

IT 14280-30-9, Hydroxide, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (long lifetime of two-color nonvolatile ***holograms*** in near-stoichiometric ***lithium*** ***tantalate*** crystals)

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Ahlfeldt, H; J Appl Phys 1994, V75, P717
- (2) Coufal, H; Holographic Data Storage 2000
- (3) Guenther, H; Appl Opt 1998, V37, P7611 CAPLUS
- (4) Guter, P; Topics in Applied Physics 1988, V61
- (5) Herrington, J; Solid State Commun 1973, V12, P351 CAPLUS
- (6) Hesselink, L; Science 1998, V282, P1089 CAPLUS
- (7) Kitamura, K; J Cryst Growth 1992, V116, P327 CAPLUS
- (8) Kratzig, E; Appl Phys 1978, V15, P133
- (9) Liu, Y; Appl Phys Lett 2003, V82, P4218 CAPLUS
- (10) Nakamura, M; J Cryst Growth 2002, V245, P267 CAPLUS
- (11) Schirmer, O; J Phys Chem Solids 1991, V52, P185 CAPLUS
- (12) Tsuya, H; J Appl Phys 1975, V46, P4323 CAPLUS
- (13) von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS
- (14) von der Linde, D; J Appl Phys 1976, V47, P217 CAPLUS
- (15) Yang, Y; Appl Phys Lett 2001, V78, P4076 CAPLUS

=> d his

(FILE 'HOME' ENTERED AT 08:00:29 ON 06 DEC 2006)

FILE 'INSPEC, CAPLUS' ENTERED AT 08:00:40 ON 06 DEC 2006

L1 7828 S (LITHIUM(5A) TANTALATE) OR LITAO3

L2 508 S L1 AND STOICHIOMET?

L3 7 S L2 AND GATING

L4 1 S L2 AND GATED

L5 8 S L3 OR L4

L6 178 S L1 AND HOLOGRA?

L7 1 S L6 AND STABLE

L8 0 S L6 AND VOLATILE

L9 2 S L6 AND VOLATILE

L10 42 S L6 AND (WAVELENGTH OR COLOR)

L11 3 S L7 OR L9

=> l10 not (l11 or l5)

L10 IS NOT A RECOGNIZED COMMAND

The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s l10 not (l11 or l5)

L12 33 L10 NOT (L11 OR L5)

=> d all 1-33

L12 ANSWER 1 OF 33 INSPEC (C) 2006 IET on STN

AN 2006:8803412 INSPEC <<LOGINID::20061206>>

TI Near-stoichiometric and Mg-doped ***LiTaO3*** for fast interband photorefraction

AU Dittrich, Ph.; Juvalta F; Montemezzani, G.; Jazbinsek, M.; Gunter, P.; (Nonlinear Opt. Lab., Swiss Fed. Inst. of Technol., Zurich, Switzerland), Kitamura, K.; Furukawa, Y.

SO 2005 Conference on Lasers and Electro-Optics Europe (IEEE Cat. No. 05TH8795), 2005, p. 193 of xxxii+722 pp., 2 refs.

ISBN: 0 7803 8974 3

Price: 0 7803 8974 3/2005/\$20.00

Published by: IEEE, Piscataway, NJ, USA

Conference: 2005 Conference on Lasers and Electro-Optics Europe, Munich, Germany, 12-17 June 2005

DT Conference; Conference Article

TC Experimental

CY United States

LA English

AB In this paper, interband photorefraction was demonstrated in near-stoichiometric ***LiTaO3*** at the deep ultraviolet ***wavelength*** $\lambda_{UV} = 257$ nm. The photoconductivity of near-stoichiometric ***LiTaO3*** at this ***wavelength*** was determined, and Bragg diffraction was investigated. The formation of two distinct grating components, which are most likely associated with free carriers on the one hand and deep traps on the other hand, was observed in depth-resolved measurements. We demonstrate that by controlling the stoichiometry the response time and dynamic range of the interband photorefractive effect can be very much improved. Measured time constants were in the order of a few tens of milliseconds for UV light intensities of about 100 mW/cm², three orders of magnitude faster than time constants reported previously for conventional photorefraction in near-stoichiometric ***LiTaO3*** at 364 nm

CC A4240E Holographic optical elements; holographic gratings; A4270G Light-sensitive materials; A6480E Stoichiometry and homogeneity; A7240 Photoconduction and photovoltaic effects; photodielectric effects; A4280F Gratings, echelles; B4350 Holography

CT Bragg gratings; ***holographic*** gratings; lithium compounds;

ST stoichiometry; Mg-doped LiTaO3; interband photorefraction;

photoconductivity; Bragg diffraction; grating components; depth-resolved measurements; 257 nm; 364 nm; LiTaO3:Mg

CHI LiTaO3:Mg ss, LiTaO3 ss, TaO3 ss, Li ss, Mg ss, O3 ss, Ta ss, O ss, Mg el, Mg dop

PHP wavelength 2.57E-07 m; wavelength 3.64E-07 m

ET Li*O-Ta; Li sy 3; sy 3; O sy 3; Ta sy 3; LiTaO3; Li cp; cp; Ta cp; O cp; Mg*O-Ta; Mg sy 3; TaO3:Mg; Mg doping; doped materials; O-Ta; TaO; Mg; LiTaO; Li; O; Ta

L12 ANSWER 2 OF 33 INSPEC (C) 2006 IET on STN

AN 2005:8306480 INSPEC DN A2005-08-4240-001; B2005-04-4350-029 <<LOGINID::20061206>>

TI Comparison of two- ***color*** ***hologram*** lifetimes of near-stoichiometric ***lithium*** niobate and of ***tantarate*** crystals

AU Youwen Liu; Kitamura, K.; Takekawa, S.; Ravi, G.; Nakamura, M.; Furukawa, Y.; (Adv. Mater. Lab., Nat. Inst. for Mater. Sci., Ibaraki, Japan), Hatano, H.

SO Applied Optics (1 Nov. 2004), vol.43, no.31, p. 5778-83, 29 refs.

CODEN: APOPAI, ISSN: 0003-6935

SICI: 0003-6935(20041101)43:31L:5778:CCHL;1-N

Price: 0003-6935/04/315778-06\$15.00/0

Published by: Opt. Soc. America, USA

DT Journal

TC Experimental
 CY United States
 LA English
 AB Lifetimes of two- *****color***** nonvolatile *****holograms***** recorded in undoped or in slightly doped near-stoichiometric *****lithium***** niobate and *****tantalate***** crystals were measured and compared by extrapolation of the high-temperature data. A proton-compensation mechanism dominated the dark decay and yielded similar activation energies, of 1.05 and 1.10 eV, for near-stoichiometric *****lithium***** niobate and *****tantalate***** crystals, respectively. The lifetime of *****holograms***** in *****lithium***** *****tantalate***** was 1 order of magnitude longer than that in lithium niobate with the same proton concentration, which was consistent with our theoretical estimation. The projected lifetime of two- *****color***** *****holograms***** in *****lithium***** *****tantalate***** without observable OH- absorption is longer than 50 years
 CC A4240H Holographic recording; A4270G Light-sensitive materials; A6480E Stoichiometry and homogeneity; B4350 Holography; B4110 Optical materials
 CT compensation; *****holographic***** storage; lithium compounds; photorefractive materials; stoichiometry
 ST two-color hologram lifetimes; near-stoichiometric lithium niobate; lithium tantalate crystals; proton-compensation mechanism; dark decay; activation energies; proton concentration; OH- absorption; 1.05 eV; 1.10 eV; LiNbO₃; LiTaO₃
 CHI LiNbO₃ ss, NbO₃ ss, Li ss, Nb ss, O₃ ss, O ss; LiTaO₃ ss, TaO₃ ss, Li ss, O₃ ss, Ta ss, O ss
 PHP electron volt energy 1.05E+00 eV; electron volt energy 1.1E+00 eV
 ET Nb*O; NbO₃; Nb cp; cp; O cp; O*Ta; TaO₃; Ta cp; NbO; Li; Nb; O; TaO; Ta; H*O; OH; OH-; H cp; OH in 1; in 1
 L12 ANSWER 3 OF 33 INSPEC (C) 2006 IET on STN
 AN 2004:8063098 INSPEC DN A2004-19-4240E-002; B2004-09-4110-094 <<LOGINID::20061206>>
 TI Sub-millisecond interband photorefractive in magnesium doped *****lithium***** *****tantalate*****
 AU Dittrich, P.; Montemezzani, G.; (Inst. of Quantum Electron., Swiss Fed. Inst. of Technol., Zurich, Switzerland), Habu, M.; Matsukura, M.; Takekawa, S.; Kitamura, K.; Gunter, P.
 SO Optics Communications (15 April 2004), vol.234, no.1-6, p. 131-6, 18 refs.
 CODEN: OPCOB8, ISSN: 0030-4018
 SICI: 0030-4018(20040415)234:1/6L:131:MIPM;1-I
 Price: 0030-4018/04/\$30.00
 Published by: Elsevier, Netherlands
 DT Journal
 TC Experimental
 CY Netherlands
 LA English
 AB We show that doping of near stoichiometric *****lithium***** *****tantalate***** with magnesium leads to enhanced interband photorefractive effects compared with undoped crystals. Investigations are performed at the deep ultraviolet (UV) *****wavelength***** .lambda. = 257 nm by Bragg diffraction experiments. The formation of two grating components with a destructive mutual phase shift is observed. For UV light intensities larger than about 500 mW/cm² the typical time constant for the response of the interband grating is faster than one millisecond. We also observed quasi-fixing of *****holographic***** gratings with UV light and nondestructive, optically switchable readout at the *****wavelength***** .lambda.HeNe = 632.8 nm
 CC A4240E Holographic optical elements; holographic gratings; A4240H Holographic recording; A4270G Light-sensitive materials; A4280F Gratings, echelles; A6170T Doping and implantation of impurities; A7840 Visible and ultraviolet spectra (condensed matter); A6480E Stoichiometry and homogeneity; B4110 Optical materials; B4350 Holography
 CT Bragg gratings; doping; *****holographic***** gratings; lithium compounds; magnesium; photorefractive effect; photorefractive materials; stoichiometry; ultraviolet spectra
 ST interband photorefractive; near stoichiometric lithium tantalate; doping; Bragg diffraction; holographic grating quasifixing; optically switchable readout; 257 nm; 632.8 nm; LiTaO₃:Mg
 CHI LiTaO₃:Mg ss, LiTaO₃ ss, TaO₃ ss, Li ss, Mg ss, O₃ ss, Ta ss, O ss, Mg el, Mg dop
 PHP wavelength 2.57E-07 m; wavelength 6.328E-07 m

ET Mg*O-Ta; Mg sy 3; sy 3; O sy 3; Ta sy 3; TaO3:Mg; Mg doping; doped materials; Ta cp; cp; O cp; O-Ta; TaO; Mg; Li*O-Ta; Li sy 3; LiTaO; Li cp; Li; O; Ta

L12 ANSWER 4 OF 33 INSPEC (C) 2006 IET on STN
AN 2004:7897549 INSPEC DN A2004-08-4240-018; B2004-04-4350-052 <<LOGINID::20061206>>
TI Infrared ***holographic*** recording in ***lithium***
tantalate crystals by means of the pyroelectric effect
AU Eggert, H.A.; Imbrock, J.; Baumer, C.; Hesse, H.; Kratzig, E.
(Fachbereich Phys., Osnabruck Univ., Germany)
SO Optics Letters (15 Oct. 2003), vol.28, no.20, p. 1975-7, 11 refs.
CODEN: OPLEDP, ISSN: 0146-9592
SICI: 0146-9592(20031015)28:20L:1975:IHRL;1-D
Price: 0146-9592/03/201975-03\$15.00/0
Published by: Opt. Soc. America, USA
DT Journal
TC Experimental
CY United States
LA English
AB Infrared ***holographic*** recording in a two-step process is demonstrated in stoichiometric iron-doped ***lithium***
tantalate crystals. Through absorption of two intersecting infrared pulses ($\lambda = 1064$ nm) a temperature grating and thus a modulated pyroelectric field build up. Free electrons, excited by homogeneous light of a shorter ***wavelength*** ($\lambda = 532$ nm) drift in this field, and a phase ***hologram*** is stored that can be read nondestructively. The change in refractive index depends mainly on the absorption coefficient at the ***wavelength*** of the recording light and on the intensity of the infrared light. The proposed method may be extended to telecommunication ***wavelengths*** by choice of suitable dopants
CC A4240H Holographic recording; A4240E Holographic optical elements; holographic gratings; A4280T Optical storage and retrieval; A4270G Light-sensitive materials; A7830G Infrared and Raman spectra in inorganic crystals; A7820D Optical constants and parameters (condensed matter); B4350 Holography; B4110 Optical materials; B4120 Optical storage and retrieval
CT ***holographic*** storage; infrared spectra; iron; lithium compounds; optical materials; optical modulation; pyroelectricity; refractive index
ST infrared holographic recording; pyroelectric effect; stoichiometric iron-doped lithium tantalate crystals; absorption; intersecting infrared pulses; temperature grating; modulated pyroelectric field; free electrons; homogeneous light; phase hologram; refractive index; absorption coefficient; recording light wavelength; infrared light intensity; telecommunication wavelengths; 1064 nm; 532 nm; LiTaO3:Fe
CHI LiTaO3:Fe ss, LiTaO3 ss, TaO3 ss, Fe ss, Li ss, O3 ss, Ta ss, O ss, Fe el, Fe dop
PHP wavelength 1.064E-06 m; wavelength 5.32E-07 m
ET Fe*O-Ta; Fe sy 3; sy 3; O sy 3; Ta sy 3; TaO3:Fe; Fe doping; doped materials; Ta cp; cp; O cp; O-Ta; TaO; Fe; Li*O-Ta; Li sy 3; LiTaO; Li cp; Li; O; Ta

L12 ANSWER 5 OF 33 INSPEC (C) 2006 IET on STN
AN 2003:7522748 INSPEC DN A2003-05-4270G-007; B2003-03-4110-011 <<LOGINID::20061206>>
TI Photorefractive properties of iron-doped ***lithium***
tantalate crystals
AU Imbrock, J.; Baumer, C.; Hesse, H.; Kip, D.; Kratzig, E. (Phys. Dept., Osnabruck Univ., Germany)
SO Technical Digest. Summaries of papers presented at the Conference on Lasers and Electro-Optics. Conference Edition (IEEE Cat. No.02CH37337), vol.1, 2002, p. 212 vol.1 of (670+96 suppl.) pp., 3 refs.
ISBN: 1 55752 705 9
Published by: Opt. Soc. America, Washington, DC, USA
Conference: Technical Digest. Summaries of papers presented at the Conference on Lasers and Electro-Optics. Conference Edition, Long Beach, CA, USA, 19-24 May 2002
Sponsor(s): IEEE/Lasers & Electro-Opt. Soc.; OSA-Opt. Soc. America; Quantum Electron. Div. Eur. Phys. Soc.; Opt. Soc. Japanese Quantum Electron. Joint Group
DT Conference; Conference Article
TC Experimental
CY United States

LA English
 'AB. Summary form only given. We have grown congruent iron-doped
 LiTaO3 crystals with six different iron concentrations.
 Photorefractive properties are studied by means of a two-beam
 interference setup. ***Holograms*** are recorded and erased with
 ordinarily polarized light of different ***wavelengths*** of an
 Ar-ion laser

CC A4270G Light-sensitive materials; A4225J Optical polarization; A7240
 Photoconduction and photovoltaic effects; photodielectric effects; A4240K
 Holographic interferometry; other holographic techniques; A0760L Optical
 interferometry; B4110 Optical materials; B4210 Photoconducting materials
 and properties; B4350 Holography

CT ***holographic*** interferometry; iron; light polarisation; lithium
 compounds; photorefractive materials; photovoltaic effects

ST crystal growth from melt; congruent iron-doped LiTaO3 crystals;
 concentrations; thermal treatments; photorefractive properties; two-beam
 interference setup; ordinarily polarized light; Ar-ion laser; hologram
 recording; LiTaO3:Fe

CHI LiTaO3:Fe ss, LiTaO3 ss, TaO3 ss, Fe ss, Li ss, O3 ss, Ta ss, O ss, Fe
 el, Fe dop

ET Li*O-Ta; Li sy 3; sy 3; O sy 3; Ta sy 3; LiTaO3; Li cp; cp; Ta cp; O cp;
 Fe*O-Ta; Fe sy 3; TaO3:Fe; Fe doping; doped materials; O-Ta; TaO; Fe;
 LiTaO; Li; O; Ta; Ar

L12 ANSWER 6 OF 33 INSPEC (C) 2006 IET on STN

AN 2001:7090466 INSPEC DN A2001-24-4265P-004; B2001-12-4340P-004 <<LOGINID::20061206>>

TI ***Wavelength*** -selective photonic switching in paraelectric
 potassium ***lithium*** ***tantallate*** niobate

AU Agranat, A.J.; Secundo, L.; Golshani, N.; (Dept. of Appl. Phys., Hebrew
 Univ., Jerusalem, Israel); Razvag, M.

SO Optical Materials (Oct. 2001), vol.18, no.1, p.195-7, 3 refs.
 CODEN: OMATET, ISSN: 0925-3467
 SICI: 0925-3467(200110)18:1L:195:WSPS;1-5
 Price: 0925-3467/2001/\$20.00
 Doc.No.: S0925-3467(01)00166-5
 Published by: Elsevier, Netherlands
 Conference: Optoelectronics IV: Photorefractive Materials: Physical
 Phenomena and Applications. Symposium J of the 2000 E-MRS-IUMRS-ICEM
 Spring Conference, Strasbourg, France, 30 May-2 June 2000

DT Conference; Conference Article; Journal

TC Experimental

CY Netherlands

LA English

AB A generic ***wavelength*** -selective switching method is presented.
 The method is based on the voltage-controlled photorefractive effect in
 paraelectric crystals. The switch consists of a crystal at the
 paraelectric phase in which a space charge grating was stored by a
 photorefractive process. Diffraction occurs by the application of a
 uniform electric field that causes the space charge grating to induce an
 index grating. Results of the diffraction efficiency as a function of the
 applied field and the time dependence of the diffracted beam are
 presented. The performance envelop of a switch based on this effect is
 briefly discussed

CC A4265P Optical bistability, multistability and switching; A4270G
 Light-sensitive materials; A4240H Holographic recording; A4280F Gratings,
 echelles; A7750 Dielectric breakdown and space-charge effects; A4280S
 Optical communication devices; A7820J Electro-optical effects (condensed
 matter); A4240E Holographic optical elements; holographic gratings;
 A7820W Other optical properties of condensed matter; B4340P Optical
 bistability, multistability and switching; B6260M Multiplexing and
 switching in optical communication; B4110 Optical materials; B4350
 Holography; B6260 Optical communication; B4150 Electro-optical devices

CT dielectric materials; electro-optical effects; electro-optical switches;
 holographic gratings; ***holography***; lithium compounds;
 optical fibre communication; packet switching; photonic switching
 systems; photorefractive materials; potassium compounds; space charge;

ST ***wavelength*** division multiplexing
 wavelength-selective photonic switching; paraelectric; generic
 wavelength-selective switching method; voltage-controlled photorefractive
 effect; paraelectric crystals; crystal; paraelectric phase; space charge
 grating; photorefractive process; diffraction; uniform electric field;
 index grating; diffraction efficiency; applied field; time dependence;

diffacted beam; performance envelop; K1-yLiYTa1-xNbO3; KLiTaO3NbO3
CHI KLiTaO3NbO3 ss, NbO3 ss, TaO3 ss, Li ss, Nb ss, O3 ss, Ta ss, K ss, O ss
ET Li*Nb*O*Ta; Li sy 4; sy 4; Nb sy 4; O sy 4; Ta sy 4; LiYTa1-xNbO3; Li
cp; cp; Ta cp; Nb cp; O cp; Nb*O*Ta; Nb sy 3; sy 3; O sy 3; Ta sy 3;
TaO3NbO3; TaO3NbO; Nb*O; NbO; O*Ta; TaO; Li; Nb; O; Ta

L12 ANSWER 7 OF 33 INSPEC (C) 2006 IET on STN
AN 2001:6902804 INSPEC DN A2001-10-7850-004 <<LOGINID::20061206>>
TI Relaxation of light-induced absorption changes in photorefractive
lithium ***tantalate*** crystals

AU Wevering, S.; Imbrock, J.; Kratzig, E. (Osnabruck Univ., Germany)
SO Journal of the Optical Society of America B (Optical Physics) (April
2001), vol.18, no.4, p. 472-8, 21 refs.
CODEN: JOBPDE, ISSN: 0740-3224
SICI: 0740-3224(200104)18:4L:472:RLIA;1-G
Price: 0740-3224/2001/040472-7\$15.00
Doc.No.: S0740-3224(01)00304-6
Published by: Opt. Soc. America, USA

DT Journal
TC Theoretical; Experimental
CY United States
LA English

AB Light-induced absorption changes in iron-doped ***lithium***
tantalate crystals are generated with ultraviolet nanosecond
pulses of a frequency-tripled Nd:YAG laser. The relaxation follows a
stretched-exponential function in which the stretching factor is
approximately 0.2-0.3. The dependences of the relaxation of the
absorption changes on light intensity, temperature, and concentration of
the Fe dopant are investigated. A simple model to account for
distance-dependent transitions between populated shallow levels and deep
traps is proposed to explain the experimental data. The consequences of
the results presented are discussed with respect to the application of
two- ***color*** ***holography*** for nonvolatile data storage.

CC A7850E Impurity and defect absorption in insulators; A4270G
Light-sensitive materials; A4240H Holographic recording; A7840H Visible
and ultraviolet spectra of other nonmetals

CT deep levels; ***holographic*** storage; impurity absorption spectra;
iron; lithium compounds; photorefractive materials; ultraviolet spectra

ST light-induced absorption change relaxation; photorefractive lithium
tantalate crystals; ultraviolet nanosecond pulses; frequency-tripled
Nd:YAG laser; stretched-exponential function; stretching factor; light
intensity; temperature dependence; concentration dependence; Fe dopant;
distance-dependent transitions; populated shallow levels; deep traps;
two-color holography; nonvolatile data storage; LiTaO3:Fe; YAG:Nd;
YAL5012:Nd

CHI LiTaO3:Fe ss, LiTaO3 ss, TaO3 ss, Fe ss, Li ss, O3 ss, Ta ss, O ss, Fe
el, Fe dop; YAL5012:Nd ss, YAL5012 ss, Al5012 ss, Al5 ss, O12 ss, Al ss,
Nd ss, O ss, Y ss, Nd el, Nd dop

ET Nd; Fe*O*Ta; Fe sy 3; sy 3; O sy 3; Ta sy 3; TaO3:Fe; Fe doping; doped
materials; Ta cp; cp; O cp; O; O*Ta; TaO; Fe; Li*O*Ta; Li sy 3; LiTaO; Li
cp; Li; Ta; Al*O*Y; Al sy 3; Y sy 3; YAL50; Y cp; Al cp; Al*O; Al50; Al;
Y

L12 ANSWER 8 OF 33 INSPEC (C) 2006 IET on STN
AN 2000:6716019 INSPEC DN A2000-21-7820W-003 <<LOGINID::20061206>>
TI Enhancement of the photorefractive effect by Er doping in ***LiTaO3***

AU Kostritskii, S.M.; (Dept. of Phys., Kemerovo State Univ., Russia),
Maring, D.B.; Tavlykaev, R.F.; Ramaswamy, R.V.
SO Advances in Photorefractive Materials, Effects, and Devices. Seventh
Topical Meeting. OSA Trends in Optics and Photonics Series Vol.27, 1999,
p. 72-9 of xii+673 pp., 18 refs.
Editor(s): Andersen, P.E.; Johansen, P.M.; Pedersen, H.C.; Petersen,
P.M.; Saffman, M.

ISBN: 1 55752 606 0
Published by: Opt. Soc. America, Washington, DC, USA
Conference: Advances in Photorefractive Materials, Effects, and Devices.
Seventh Topical Meeting, Elsimore, Denmark, 27-30 June 1999
Sponsor(s): Danish Natural Sci. Res. Council; Danish Opt. Soc.; Danish
Phys. Soc.; Eur. Opt. Soc. et al
DT Conference; Conference Article
TC Experimental
CY United States

LA English
 .AB It is established that Er doping increases significantly the photorefractive effect in ***LiTaO3***. The mechanisms of increased photorefractivity attributed to Er doping are identified based on studies of Raman and fluorescence spectra. Potential applications toward high-efficiency nonvolatile ***holographic*** storage devices with two- ***color*** recording are discussed

CC A7820W Other optical properties of condensed matter; A7855H Photoluminescence in other inorganic materials; A7830G Infrared and Raman spectra in inorganic crystals; A4280T Optical storage and retrieval; A4240H Holographic recording; A4270G Light-sensitive materials

CT erbium; fluorescence; ***holographic*** storage; lithium compounds; photorefractive effect; photorefractive materials; Raman spectra

ST enhanced photorefractive effect; Er doping; LiTaO3; Raman spectra; fluorescence spectra; high-efficiency nonvolatile holographic storage devices; two-color recording; LiTaO3:Er

CHI LiTaO3:Er ss, LiTaO3 ss, TaO3 ss, Er ss, Li ss, O3 ss, Ta ss, O ss, Er el, Er dop

ET O*Ta; TaO3; Ta cp; cp; O cp; Er*O*Ta; Er sy 3; sy 3; O sy 3; Ta sy 3; TaO3:Er; Er doping; doped materials; TaO; Er; Li*O*Ta; Li sy 3; LiTaO; Li cp; Li; O; Ta; LiTaO3

L12 ANSWER 9 OF 33 INSPEC (C) 2006 IET on STN

AN 1999:6348841 INSPEC DN A1999-20-4240-009; B1999-10-4350-025 <<LOGINID::20061206>>

TI Nonvolatile ***holographic*** storage in photorefractive ***lithium*** ***tantarate*** crystals with laser pulses

AU Imbrock, J.; Wevering, S.; Buse, K.; Kratzig, E. (Fachbereich Phys., Osnabruck Univ., Germany)

SO Journal of the Optical Society of America B (Optical Physics) (Sept. 1999), vol.16, no.9, p. 1392-7, 17 refs.
 CODEN: JOBPDE, ISSN: 0740-3224
 SICI: 0740-3224(199909)16:9L:1392:NHSP;1-1
 Price: 0740-3224/99/091392-6\$15.00
 Doc.No.: S0740-3224(99)03509-2
 Published by: Opt. Soc. America, USA

DT Journal
 TC Experimental
 CY United States
 LA English
 AB Nonvolatile ***holograms*** are recorded in photorefractive ***LiTaO3***:Fe with laser pulses by use of two-step excitation. Ultraviolet laser pulses (***wavelength*** .lambda.=355 nm) yield a strong increase of absorption (as much as 600 m-1 at .lambda.=633 nm) and sensitize the crystals for subsequent infrared (.lambda.=1064 nm) ***holographic*** recording. Refractive-index changes of as much as 1.6.times.10-4 are achieved for intensities of the infrared light of 1011 W/m2. The saturation values are proportional to the concentration of Fe3+ ions. Nondestructive readout with infrared light is possible, and the ***holograms*** remain erasable for ultraviolet light. Typical time constants of recording and erasure are 0.5 .mu.s for intensities of the ultraviolet light of 1011 W/m2. The results can be explained with a two-level charge-transport model

CC A4240H Holographic recording; A4270G Light-sensitive materials; A4265G Optical transient phenomena, self-induced transparency, optical saturation and related effects; B4350 Holography; B4110 Optical materials; B4340G Optical saturation and related effects

CT ***holography***; iron; lithium compounds; nondestructive readout; optical saturation; photorefractive materials; recording

ST nonvolatile holographic recording; photorefractive crystals; laser pulses; two-step excitation; ultraviolet laser pulses; absorption; infrared holographic recording; refractive-index changes; infrared light; saturation values; nondestructive readout; erasable holograms; ultraviolet light; time constants; recording; erasure; two-level charge-transport model; LiTaO3:Fe; 355 nm; 633 nm; 1064 nm; 0.5 mus

CHI LiTaO3:Fe ss, LiTaO3 ss, TaO3 ss, Fe ss, Li ss, O3 ss, Ta ss, O ss, Fe el, Fe dop

PHP wavelength 3.55E-07 m; wavelength 6.33E-07 m; wavelength 1.064E-06 m; time 5.0E-07 s

ET Fe*O*Ta; Fe sy 3; sy 3; O sy 3; Ta sy 3; TaO3:Fe; Fe doping; doped materials; Ta cp; cp; O cp; O*Ta; TaO; Fe; Li*O*Ta; Li sy 3; LiTaO; Li cp; Li; O; Ta; Fe*Li*O*Ta; Fe sy 4; sy 4; Li sy 4; O sy 4; Ta sy 4; LiTaO3:Fe; Fe3+; Fe ip 3; ip 3

L12 ANSWER 10 OF 33 INSPEC (C) 2006 IET on STN
 AN 1999:6247427 INSPEC DN A1999-12-4270G-001; B1999-06-4110-013 <<LOGINID::20061206>>
 TI Stoichiometric ***LiTaO3*** for dynamic ***holography*** in near
 UV ***wavelength*** range
 AU Furukawa, Y.; Kitamura, K.; (Nat. Inst. for Res. in Inorg. Mater.,
 Tsukuba, Japan), Niwa, K.; Hatano, H.; Bernasconi, P.; Montemezzani, G.;
 Gunter, P.
 SO Japanese Journal of Applied Physics, Part 1 (Regular Papers, Short Notes
 & Review Papers) (March 1999), vol.38, no.3B, p. 1816-19, 18 refs.
 CODEN: JAPNDE, ISSN: 0021-4922
 SICI: 0021-4922(199903)38:3BL:1816:SLDH;1-1
 Published by: Publication Office, Japanese Journal Appl. Phys, Japan
 Conference: Optical Memories, Tsukuba, Japan, 20-22 Oct. 1998
 DT Conference; Conference Article; Journal
 TC Practical; Experimental
 CY Japan
 LA English
 AB ***LiTaO3*** single crystals with near-stoichiometric composition are
 grown using a double crucible Czochralski method equipped with an
 automatic powder supply system. Their photorefractive properties are
 compared with those of ***LiTaO3*** crystals grown from the congruent
 composition melt. Two beam coupling experiments show that nearly
 stoichiometric ***LiTaO3*** crystals exhibit considerably higher
 photorefractive gain, speed and sensitivity than conventional congruent
 crystals, due to the relatively large photoconductivity observed at near
 UV ***wavelengths***, stoichiometric crystals are further
 characterized by small photogalvanic fields, making them very attractive
 for dynamic ***holography*** in this ***wavelength*** range
 CC A4270G Light-sensitive materials; A8110F Crystal growth from melt; A7240
 Photoconduction and photovoltaic effects; photodielectric effects; A4280T
 Optical storage and retrieval; A4240M Applications of holography; A4265M
 Multiwave mixing; B4110 Optical materials; B0510 Crystal growth; B4210
 Photoconducting materials and properties; B4120 Optical storage and
 retrieval; B4350 Holography; B4340F Optical phase conjugation and
 multiwave mixing
 CT crystal growth from melt; ***holographic*** storage; lithium
 compounds; multiwave mixing; optical materials; photoconductivity;
 photovoltaic effects
 ST stoichiometric LiTaO3; dynamic holography; near UV wavelength range;
 LiTaO3 single crystals; near-stoichiometric composition; double crucible
 Czochralski method; automatic powder supply; photorefractive properties;
 congruent composition melt; two beam coupling; nearly stoichiometric
 LiTaO3 crystals; photorefractive gain; large photoconductivity; near UV
 wavelengths; small photogalvanic fields; LiTaO3
 CHI LiTaO3 ss, TaO3 ss, Li ss, O3 ss, Ta ss, O ss
 ET Li*O-Ta; Li sy 3; sy 3; O sy 3; Ta sy 3; LiTaO3; Li cp; cp; Ta cp; O cp;
 O-Ta; TaO3; TaO; Li; O; Ta

L12 ANSWER 11 OF 33 INSPEC (C) 2006 IET on STN
 AN 1997:5645422 INSPEC DN A1997-17-4270G-001; B1997-09-4110-014 <<LOGINID::20061206>>
 TI Light-induced charge transport processes in photorefractive crystals. II.
 Materials
 AU Buse, K. (Fachbereich Phys., Osnabruck Univ., Germany)
 SO Applied Physics B (Lasers and Optics) (April 1997), vol.B64, no.4, p.
 391-407, 254 refs.
 CODEN: APBOEM, ISSN: 0946-2171
 SICI: 0946-2171(199704)B64:4L:391:LICT;1-S
 Published by: Springer-Verlag, Germany
 DT Journal
 TC Experimental
 CY Germany
 LA English
 AB For pt.I see ibid., p.273, 1997. The charge transport processes in
 different photorefractive oxide crystals are reviewed and consequences
 for applications are outlined. - The light-induced charge transport
 processes in LiNbO3, ***LiTaO3***, BaTiO3, Ba1-xSrxTiO3
 (0.1toreq.x.ltoreq.1, BST), Ba1-xCaxTiO3 (0.1toreq.x.ltoreq.1, BCT),
 KNbO3, KTa1-xNbxO3 (0.1toreq.x.ltoreq.1, KTN), Sr1-xBaxNb2O6
 (0.1toreq.x.ltoreq.1, SBN) and Bi12(Si,Ti,Ge)O20 (BSO, BTO, BGO) are
 discussed. Utilizing the knowledge on the charge transport processes,
 consequences for applications are deduced; improved techniques for

nondestructive readout of ***holograms*** with light of the recording
 wavelength are described

CC A4270G Light-sensitive materials; A7820W Other optical properties of condensed matter; A7240 Photoconduction and photovoltaic effects; photodielectric effects; A4265G Optical transient phenomena, self-induced transparency, optical saturation and related effects; A4240 Holography; B4110 Optical materials; B4350 Holography; B4210 Photoconducting materials and properties

CT barium compounds; bismuth compounds; calcium compounds; ***holography***; lithium compounds; photoconductivity; photorefractive effect; photorefractive materials; potassium compounds; refractive index; self-induced transparency; strontium compounds

ST light induced charge transport processes; light induced transparency; photorefractive oxide crystals; holography; hologram nondestructive readout; photoconductivity; titanates; niobates; tantalates; LiNbO₃; LiTaO₃; BaTiO₃; BaSrTiO₃; BaCaTiO₃; KNbO₃; KTaNbO₃; SrBaNb₂O₆; Bi₁₂SiO₂₀; Bi₁₂GeO₂₀; Bi₁₂TiO₂₀

CHI LiNbO₃ ss, NbO₃ ss, Li ss, Nb ss, O₃ ss, O ss; LiTaO₃ ss, TaO₃ ss, Li ss, O₃ ss, Ta ss, O ss; BaTiO₃ ss, TiO₃ ss, Ba ss, O₃ ss, Ti ss, O ss; BaSrTiO₃ ss, TiO₃ ss, Ba ss, O₃ ss, Sr ss, Ti ss, O ss; BaCaTiO₃ ss, TiO₃ ss, Ba ss, Ca ss, O₃ ss, Ti ss, O ss; KNbO₃ ss, NbO₃ ss, Nb ss, O₃ ss, K ss, O ss; KTaNbO₃ ss, NbO₃ ss, Nb ss, O₃ ss, Ta ss, K ss, O ss; SrBaNb₂O₆ ss, Nb₂ ss, Ba ss, Nb ss, O₆ ss, Sr ss, O ss; Bi₁₂SiO₂₀ ss, Bi₁₂ ss, SiO₂ ss, O₂₀ ss, Bi ss, Si ss, O ss; Bi₁₂GeO₂₀ ss, Bi₁₂ ss, GeO₂ ss, O₂₀ ss, Bi ss, Ge ss, O ss; Bi₁₂TiO₂₀ ss, Bi₁₂ ss, O₂₀ ss, Bi ss, Ti ss, O ss

ET Nb*O; NbO₃; Nb cp; cp; O cp; O*Ta; TaO₃; Ta cp; O*Ti; TiO₃; Ti cp; O*Sr*Ti; O sy 3; sy 3; Sr sy 3; Ti sy 3; SrTiO₃; Sr cp; Ca*O*Ti; Ca sy 3; CaTiO₃; Ca cp; Ba*Nb*O; Ba sy 3; Nb sy 3; BaNb₂O₆; Ba cp; O*Si; SiO₂₀; Si cp; Ge*O; GeO₂₀; Ge cp; TiO₂₀; NbO; Li; Nb; O; TaO; Ta; TiO; Ba; Ti; SrTiO; Sr; CaTiO; Ca; BaNb₂O; SiO; Bi; Si; GeO; Ge; Li*Nb*O; Li sy 3; LiNbO₃; Li cp; Li*O*Ta; Ta sy 3; LiTaO₃; Ba*O*Ti; BaTiO₃; Ba*O*Sr*Ti; Ba sy 4; sy 4; O sy 4; Sr sy 4; Ti sy 4; Ba_{1-x}Sr_xTiO₃; Ba*Ca*O*Ti; Ca sy 4; Ba_{1-x}Ca_xTiO₃; K*Nb*O; K sy 3; KNbO₃; K cp; K*Nb*O*Ta; K sy 4; Nb sy 4; Ta sy 4; KTa_{1-x}Nb_xO₃; Ba*Nb*O*Sr; Sr_{1-x}Ba_xNb₂O₆; Bi*Si; Bi sy 2; sy 2; Si sy 2; Bi₁₂(Si; Bi cp

L12 ANSWER 12 OF 33 INSPEC (C) 2006 IET on STN

AN 1983:2022036 INSPEC DN A1983-036959 <<LOGINID::20061206>>

TI Photorefraction and anisotropic light scattering in LiNbO₃-Fe crystals

AU Augustov, P.A.; Reinfelde, M.J.; Shvarts, K.K. (Inst. of Phys., Acad. of Sci., Riga-Salaspils, Latvian SSR, USSR)

SO Applied Physics A (Solids and Surfaces) (Nov. 1982), vol.A29, no.3, p. 169-72, 10 refs.
 CODEN: APSFDB, ISSN: 0721-7250
 Price: 0721-7250/82/0029/0169/\$01.00

DT Journal

TC Experimental

CY Germany, Federal Republic of

LA English

AB By ***holographic*** recording in LiNbO₃-Fe and ***LiTaO₃*** -Fe crystals a new light scattering effect has been observed with an optical indicatrix along the optical axis. The kinetics of the light scattering depends on the intensity, ***wavelength*** as well as the polarization of the incident light. The ***holographic*** volume grating is created by the interference of incident light and light scattered by crystal inhomogeneities

CC A4240H Holographic recording; A4280F Gratings, echelles; A7820 Optical properties of condensed matter

CT ***holographic*** gratings; ***holography***; iron; light scattering; lithium compounds; photorefractive effect

ST Fe doped; photorefraction; anisotropic light scattering; LiNbO₃; crystals; holographic recording; LiTaO₃; optical indicatrix; volume grating

ET Nb*O; NbO₃; Nb cp; cp; O cp; O*Ta; TaO₃; Ta cp; Fe*Li*Nb*O; Fe sy 4; sy 4; Li sy 4; Nb sy 4; O sy 4; LiNbO₃; Li cp; LiNbO₃-Fe; Fe*Li*O*Ta; Ta sy 4; LiTaO₃; LiTaO₃-Fe

L12 ANSWER 13 OF 33 INSPEC (C) 2006 IET on STN

AN 1975:782251 INSPEC DN A1975-044428; B1975-025231 <<LOGINID::20061206>>

TI ***Holographic*** formation of gratings in optical waveguiding layers

AU Wood, V.E.; Hartman, N.F.; Verber, C.M.; Kenan, R.P. (Battelle Columbus Labs., OH, USA)

SO Journal of Applied Physics (March 1975), vol.46, no.3, p. 1214-15, 11
 refs.
 CODEN: JAPIAU, ISSN: 0021-8979
 DT Journal
 TC Experimental
 CY United States
 LA English
 AB Photorefractive formation of thick phase (Bragg) gratings is reported, in
 which refractive index changes are produced by intersecting guided
 coherent beams of 0.488 .mu.m ***wavelengths*** in waveguides formed
 on the surface of LiNbO3 crystals by effusion of Li, and in a waveguide
 formed on the surface of a ***LiTaO3*** crystal by in-diffusion of a
 vapour-deposited layer of Nb. The performance of the gratings is assessed
 CC A4240K Holographic interferometry; other holographic techniques; A4280F
 Gratings, echelles; A4280L Optical waveguides and couplers; B4130 Optical
 waveguides; B4350 Holography
 CT diffraction gratings; ***holography*** ; lithium compounds; optical
 waveguides
 ST holographic formation of gratings; photorefractive formation; thick phase
 gratings; 0.488 microns; Bragg gratings; optical waveguiding layers;
 LiNbO3 crystals; LiTaO3 crystal
 ET Nb*O; NbO3; Nb cp; cp; O cp; O*Ta; TaO3; Ta cp; Li*Nb*O; Li sy 3; sy 3;
 Nb sy 3; O sy 3; LiNbO3; Li cp; Li; Li*O*Ta; Ta sy 3; LiTaO3; Nb

L12 ANSWER 14 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 2005:863920 CAPLUS <<LOGINID::20061206>>
 DN 143:484730
 ED Entered STN: 23 Aug 2005
 TI Interband photorefractive effect in pure and Mg-doped near-stoichiometric
 LiTaO3
 AU Juvalta, F.; Dittrich, Ph.; Jazbinsek, M.; Gunter, P.; Montemezzani, G.;
 Kitamura, K.; Furukawa, Y.
 CS Nonlinear Optics Laboratory, Swiss Federal Institute of Technology,
 Zurich, CH-8093, Switz.
 SO Trends in Optics and Photonics (2005), 99(Photorefractive Effects,
 Materials, and Devices), 96-100
 CODEN: TOPRBS
 PB Optical Society of America
 DT Journal
 LA English
 CC 73-4 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)
 AB We investigate interband photorefractive effect in pure and Mg-doped
 near-stoichiometric ***LiTaO3*** at the deep UV ***wavelength***
 of 257 nm. By controlling the stoichiometry, the response time and
 dynamic range of the interband photorefractive effect can be very much
 improved. Measured time constants are in the order of a few tens of
 milliseconds for UV light intensities of about 100 mW/cm2. Further, we
 report that Mg doping of near-stoichiometric ***LiTaO3*** increases
 the grating response rate by a factor of 50 compared with the one in
 undoped crystals. For UV light intensities larger than 500 mW/cm2 the
 response time is faster than one millisecond. In Mg-doped
 near-stoichiometric ***LiTaO3***, quasi-fixing of ***holog***
 gratings with UV light and nondestructive readout in the visible has been
 obsd.
 ST pure magnesium doped near stoichiometric ***lithium***
 tantalate interband photorefractive effect
 IT Photorefractive effect
 UV and visible spectra
 (interband photorefractive effect in pure and magnesium-doped
 near-stoichiometric lithium tantalum oxide at deep UV
 wavelength of 257 nm)
 IT 12031-66-2, Lithium tantalum oxide (***LiTaO3***)
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP
 (Physical process); PROC (Process)
 (Mg-doped; interband photorefractive effect in pure and magnesium-doped
 near-stoichiometric lithium tantalum oxide at deep UV
 wavelength of 257 nm)
 IT 7439-95-4, Magnesium, properties
 RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical
 process); PRP (Properties); PYP (Physical process); PROC (Process); USES
 (Uses)

(dopant; interband photorefraction in pure and magnesium-doped
near-stoichiometric lithium tantalum oxide at deep UV
wavelength of 257 nm)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Bernasconi, P; Appl Phys B 1999, V68, P833 CAPLUS
- (2) Dittrich, P; J Opt Soc Am B 2004, V21, P632 CAPLUS
- (3) Dittrich, P; Opt Com 2004, V234, P131 CAPLUS
- (4) Dittrich, P; Opt Comm 2002, V214, P363 CAPLUS
- (5) Dittrich, P; Opt Lett 1999, V24, P1508 CAPLUS
- (6) Furukawa, Y; J Cryst Growth 1999, V197, P889 CAPLUS
- (7) Furukawa, Y; Jap J of Appl Phys 1999, V38, P1816 CAPLUS
- (8) Imbrock, J; J Opt Soc Am B 1999, V16, P1392 CAPLUS
- (9) Ryf, R; Opt Lett 2001, V26, P1666 CAPLUS

L12 ANSWER 15 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2005:119291 CAPLUS <<LOGINID::20061206>>

DN 144:180652

ED Entered STN: 11 Feb 2005

TI Investigation on dark decay of two- ***color*** ***holograms*** in
near-stoichiometric LiNbO3 and ***LiTaO3***

AU Liu, Youwen; Kitamura, Kenji; Takekawa, Shunji; Ravi, Ganesan; Nakamura,
Masaru; Hatano, Hideki

CS Advanced Materials Laboratory, National Institute for Materials Science,
1-1 Namiki, Tsukuba, Ibaraki, 305-0044, Japan

SO Proceedings of SPIE-The International Society for Optical Engineering
(2005), 5646(Nonlinear Optical Phenomena and Applications), 623-627

CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal

LA English

CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

AB We have investigated the dark decay mechanism by measuring dark decay time
consts. of two- ***color*** ***holograms*** recorded in undoped and
slightly doped near-stoichiometric LiNbO3 and ***LiTaO3*** crystals in
the temp. range from 50 to 200.degree.C. All the samples in this work
obey an Arrhenius-type dependence of time const. on abs. temp., and yield
nearly same activation energies of 1.08 eV. The results show that proton
compensation mechanism dominated the dark decay process. Lifetimes of
holograms at room temp. in ***LiTaO3*** are one order of
magnitude longer than that in LiNbO3 if having the same proton concn.

ST dark decay two ***color*** ***holograms*** lithium niobium oxide
tantalum

IT Stretching vibration

(hydroxyl, proton compensation; study of dark decay of two-

color ***holograms*** in near-stoichiometric lithium
niobium oxide and lithium tantalum oxide)

IT Diffusion

(proton; study of dark decay of two- ***color*** ***holograms***
in near-stoichiometric lithium niobium oxide and lithium tantalum
oxide)

IT Activation energy

Boltzmann equation

Curie temperature (ferroelectric)

Czochralski crystal growth

Holographic recording materials

Photorefractive materials

Proton transfer

(study of dark decay of two- ***color*** ***holograms*** in
near-stoichiometric lithium niobium oxide and lithium tantalum oxide)

IT ***Holography***

(two- ***color*** ; study of dark decay of two- ***color***
holograms in near-stoichiometric lithium niobium oxide and
lithium tantalum oxide)

IT 7439-96-5, Manganese, uses 7440-27-9, Terbium, uses

RL: MOA (Modifier or additive use); USES (Uses)

(dopant; study of dark decay of two- ***color*** ***holograms***
in near-stoichiometric lithium niobium oxide and lithium tantalum
oxide)

IT 3352-57-6, Hydroxyl, properties 12586-59-3, Proton

RL: PRP (Properties)

(proton compensation; study of dark decay of two- ***color***
 holograms in near-stoichiometric lithium niobium oxide and
 lithium tantalum oxide)

IT 12031-63-9, Lithium niobate (LiNbO3) 12031-66-2, ***Lithium***
 tantalate (***LiTaO3***)

RL: TEM (Technical or engineered material use); USES (Uses)
 (study of dark decay of two- ***color*** ***holograms*** in
 near-stoichiometric lithium niobium oxide and lithium tantalum oxide)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Bai, Y; Phys Rev Lett 1997, V78, P2944 CAPLUS
- (2) Coufal, H; Holographic Data Storage 2000
- (3) Guenther, H; Appl Opt 1998, V37, P7611 CAPLUS
- (4) Herrington, J; Solid State Commun 1973, V12, P351 CAPLUS
- (5) Hesselink, L; Science 1998, V282, P1089 CAPLUS
- (6) Kitamura, K; J Cryst Growth 1992, V116, P327 CAPLUS
- (7) Kitamura, K; Photorefractive Effects, Materials, and Devices, OSA
 Proceedings Series 2003, V87, P666 CAPLUS
- (8) Klauer, S; Phys Rev B 1992, V45, P2786 CAPLUS
- (9) Kovacs, L; J Phys Chem Solids 1991, V52, P797 CAPLUS
- (10) Kovacs, L; Phys Status Solidi A 1990, V120, P97 CAPLUS
- (11) Lee, M; Appl Phys Lett 2000, V76, P1653 CAPLUS
- (12) Liu, Y; Appl Phys Lett 2002, V81, P2686 CAPLUS
- (13) Liu, Y; Appl Phys Lett 2003, V82, P4218 CAPLUS
- (14) Mandula, G; International Conference on Solid State Crystals 2000: Growth,
 Characterization, and Applications of Single Crystals, Proc SPIE 2001,
 V4412, P226 CAPLUS
- (15) Matthews, P; J Appl Phys 1992, V72, P2562 CAPLUS
- (16) Staebler, D; Ferroelectrics 1972, V3, P107 CAPLUS
- (17) Von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS
- (18) Vormann, H; Solid State Commun 1981, V40, P543 CAPLUS
- (19) Yang, Y; Appl Phys Lett 2001, V78, P4076 CAPLUS
- (20) Yang, Y; J Opt Soc Am B 2003, V20, P1491 CAPLUS

L12 ANSWER 16 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:1034466 CAPLUS <<LOGINID::20061206>>

DN 143:275499

ED Entered STN: 03 Dec 2004

TI Comparison of two- ***color*** ***hologram*** lifetimes of
 near-stoichiometric ***lithium*** niobate and of ***tantalate***
 crystals

AU Liu, Youwen; Kitamura, Kenji; Takekawa, Shunji; Ravi, Ganesan; Nakamura,
 Masaru; Furukawa, Yasunori; Hatano, Hideki

CS Advanced Materials Laboratory, National Institute for Materials Science,
 Tsukuba, Ibaraki, 305-0044, Japan

SO Applied Optics (2004), 43(31), 5778-5783

CODEN: APOPAI; ISSN: 0003-6935

PB Optical Society of America

DT Journal

LA English

CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)

AB Lifetimes of two- ***color*** nonvolatile ***holograms*** recorded
 in undoped- or in slightly doped near-stoichiometric ***lithium***
 niobate and ***tantalate*** crystals were measured and compared by
 extrapolation of the high-temp. data. A proton-compensation mechanism
 dominated the dark decay and yielded similar activation energies, of 1.05
 and 1.10 eV, for near-stoichiometric ***lithium*** niobate and
 tantalate crystals, resp. The lifetime of ***holograms*** in
 lithium ***tantalate*** was 1 order of magnitude longer than
 that in lithium niobate with the same proton concn., which was consistent
 with our theor. estn. The projected lifetime of two- ***color***
 holograms in ***lithium*** ***tantalate*** without
 observable OH- absorption is longer than 50 years.

ST ***hologram*** lifetime ***lithium*** niobate ***tantalate***
 crystal

IT Activation energy
 Curie temperature (ferromagnetic)
 Dopants
 Holographic recording materials
 IR spectra
 Stoichiometry

UV and visible spectra
(lifetimes of two- ***color*** ***holograms*** recorded in
near-stoichiometric ***lithium*** niobate and ***lithium***
tantarate crystals)
IT 7439-96-5, Manganese, uses 7440-27-9, Terbium, uses 14280-30-9,
Hydroxide, uses
RL: MOA (Modifier or additive use); USES (Uses)
(lifetimes of two- ***color*** ***holograms*** recorded in
near-stoichiometric ***lithium*** niobate and ***lithium***
tantarate crystals)
IT 12031-63-9, Lithium niobate LiNbO3 12031-66-2, ***Lithium***
tantarate (***LiTaO3***)
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP
(Physical process); PROC (Process)
(lifetimes of two- ***color*** ***holograms*** recorded in
near-stoichiometric ***lithium*** niobate and ***lithium***
tantarate crystals)
RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Amodei, J; Appl Phys Lett 1971, V18, P540 CAPLUS
- (2) Bai, Y; Phys Rev Lett 1997, V78, P2944 CAPLUS
- (3) Buse, K; Nature 1998, V393, P665 CAPLUS
- (4) Coufal, H; Holographic Data Storage 2000
- (5) Guenther, H; Appl Opt 1998, V37, P7611 CAPLUS
- (6) Herrington, J; Solid State Commun 1973, V12, P351 CAPLUS
- (7) Hesselink, L; Science 1998, V282, P1089 CAPLUS
- (8) Kapphan, S; Phys Status Solidi A 1992, V133, P159 CAPLUS
- (9) Kitamura, K; J Cryst Growth 1992, V116, P327 CAPLUS
- (10) Kitamura, K; Photorefractive Effects, Materials, and Devices, OSA
Proceedings Series 2003, V87, P666 CAPLUS
- (11) Klauer, S; Phys Rev B 1992, V45, P2786 CAPLUS
- (12) Kovacs, L; J Phys Chem Solids 1991, V52, P797 CAPLUS
- (13) Kovacs, L; Phys Status Solidi A 1990, V120, P97 CAPLUS
- (14) Lee, M; Appl Phys Lett 2000, V76, P1653 CAPLUS
- (15) Liu, Y; Appl Phys Lett 2002, V81, P2686 CAPLUS
- (16) Liu, Y; Appl Phys Lett 2003, V82, P4218 CAPLUS
- (17) Liu, Y; J Appl Phys 2004, V95, P7637 CAPLUS
- (18) Mandula, G; International Conference on Solid State Crystals 2000: Growth,
Characterization and Applications of Single Crystals, Proc SPIE 2001,
V4412, P226 CAPLUS
- (19) Matthews, P; J Appl Phys 1992, V72, P2562 CAPLUS
- (20) Nakamura, M; J Cryst Growth 2002, V245, P267 CAPLUS
- (21) O'Bryan, H; J Am Ceram Soc 1985, V68, P493 CAPLUS
- (22) Polgar, K; J Cryst Growth 1997, V177, P211 CAPLUS
- (23) Schirmer, O; J Phys Chem Solids 1991, V52, P185 CAPLUS
- (24) Staebler, D; Ferroelectrics 1972, V3, P107 CAPLUS
- (25) Von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS
- (26) Vormann, H; Solid State Commun 1981, V40, P543 CAPLUS
- (27) Watanabe, Y; J Phys Condens Matter 1995, V7, P3627 CAPLUS
- (28) Yang, Y; Appl Phys Lett 2001, V78, P4076 CAPLUS
- (29) Yang, Y; J Opt Soc Am B 2003, V20, P1491 CAPLUS

L12 ANSWER 17 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:898812 CAPLUS <<LOGINID::20061206>>

DN 141:373802

ED Entered STN: 28 Oct 2004

TI Ferroelectric materials and their 2- ***color*** ***holographic***
memory media and wave filter

IN Hatano, Hideki; Liu, Youwen; Kitamura, Kenji; Takekawa, Shunji; Nakamura,
Masru; Furukawa, Yasunori

PA Pioneer Electronic Corp., Japan; Toshiba Denko Co., Ltd.; Oxide
Corporation

SO Jpn. Kokai Tokkyo Koho, 21 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C30B029-30

ICS C01G035-00; G02B001-02; G02B005-28; G03H001-02

CC 76-8 (Electric Phenomena)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP	2004300015	A2	20041028	JP	2004-40215	20040217
	US	2004234867	A1	20041125	US	2004-798974	20040312
PRAI	JP	2003-69897	A	20030314			
	JP	2004-40215	A	20040217			

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2004300015	ICM	C30B029-30
	ICS	C01G035-00; G02B001-02; G02B005-28; G03H001-02
	IPCI	C30B0029-30 [ICM,7]; C30B0029-10 [ICM,7,C*]; C01G0035-00 [ICS,7]; G02B0001-02 [ICS,7]; G02B0001-00 [ICS,7,C*]; G02B0005-28 [ICS,7]; G03H0001-02 [ICS,7]
	IPCR	G03H0001-02 [I,A]; G03H0001-02 [I,C*]; G03H0001-26 [I,A]; G03H0001-26 [I,C*]
	FTERM	2H048/GA03; 2H048/GA13; 2H048/GA33; 2H048/GA60; 2H048/GA62; 2K008/AA04; 2K008/BB05; 2K008/DD23; 2K008/EE01; 2K008/FF17; 2K008/HH01; 2K008/HH06; 2K008/HH13; 2K008/HH18; 2K008/HH26; 2K008/HH28; 4G048/AA04; 4G048/AB01; 4G048/AB02; 4G048/AB05; 4G048/AC02; 4G048/AD07; 4G048/AE05; 4G077/AA02; 4G077/AB04; 4G077/CF10; 4G077/EC07; 4G077/HA11
US 2004234867	IPCI	G03H0001-02 [ICM,7]
	IPCR	G02B0005-28 [I,C*]; G02B0005-28 [I,A]; C01G0035-00 [I,C*]; C01G0035-00 [I,A]; C30B0029-10 [I,C*]; C30B0029-30 [I,A]; G02B0001-00 [I,C*]; G02B0001-02 [I,A]; G03H0001-02 [I,C*]; G03H0001-02 [I,A]; G03H0001-26 [I,C*]; G03H0001-26 [I,A]
	NCL	430/001.000; 359/007.000; 430/002.000
	ECLA	G03H001/02; G03H001/26; G11B007/0045; G11B007/0065; G11B007/125L2; G11B007/243

AB The ferroelec. materials whose refractive indexes change by irradiation of 2 lights of different ***wavelength*** without redn. treatment nor addn. of impurities comprise single-cryst. Li tantalate (LT) having the compn. of $\text{Li}_2\text{O}/(\text{Li}_2\text{O} + \text{Ta}_2\text{O}_5) = 0.4966-0.4995$, i.e., near-stoichiometric (NS) compn. Preferably, the proton concn. in the NSLT single crystal is defined that IR absorption coeff. in the [OH] stretch mode becomes 0-0.15 cm^{-1} . The 2- ***color*** ***holog*** memory media contain the NSLT single crystal. The wave filter contains the NSLT single crystal having .gtoreq.1 refractive index gratings.

ST near stoichiometric ***lithium*** ***tantalate*** ferroelec material; two ***color*** ***holog*** memory ferroelec ***lithium*** ***tantalate***; wave filter ferroelec ***lithium*** ***tantalate***; dopant free near stoichiometric ***lithium*** ***tantalate***

IT Ferroelectric materials
Holographic recording materials
Optical filters
(single-cryst. near-stoichiometric Li tantalate ferroelec. materials for 2- ***color*** ***holog*** memory media and wave filter)

IT 12031-66-2DP, ***Lithium*** ***tantalate***, near-stoichiometric RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(single-cryst. near-stoichiometric Li tantalate ferroelec. materials for 2- ***color*** ***holog*** memory media and wave filter)

L12 ANSWER 18 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:350009 CAPLUS <<LOGINID::20061206>>

DN 141:268440

ED Entered STN: 30 Apr 2004

TI Utilizing the pyroelectric effect for infrared ***holographic*** recording

AU Eggert, H. A.; Imbrock, J.; Kraetzig, E.

CS Fachbereich Physik, Universitaet Osnabrueck, Osnabrueck, 49069, Germany

SO Ukrains'kii Fizichnii Zhurnal (2004), 49(4), 313-321

CODEN: UFZHFY; ISSN: 0372-400X

PB Natsional'na Akademiya Nauk Ukraini, Viddilennya Fiziki i Astronomii

DT Journal

LA English

CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

AB ***Holog*** gratings are stored in photorefractive ***lithium*** ***tantalate*** crystals with IR-laser pulses without previous

sensitization. Through the absorption of IR light, a thermal grating builds up, which yields a pyroelec. field. Subsequent homogeneous illumination with light of a shorter ***wavelength*** excites electrons that drift in the pyroelec. field. Thus, the ***holog*** information of the IR light pattern is stored as a vol. phase ***hologram*** that can be read nondestructively. The refractive index change depends mainly on the absorption coeff. at the ***wavelength*** of the recording light and therefore, by choice of suitable dopants, may be extended to telecommunication ***wavelengths***.

ST pyroelec effect IR ***holog*** recording
IT ***Holography***
Photoconductivity
Pyroelectricity
Refractive index
(utilizing pyroelec. effect for IR ***holog*** . recording)

IT 7439-89-6, Iron, uses
RL: MOA (Modifier or additive use); USES (Uses)
(dopant; utilizing pyroelec. effect for IR ***holog*** . recording)

IT 12031-66-2, ***Lithium*** ***tantarate***
RL: TEM (Technical or engineered material use); USES (Uses)
(utilizing pyroelec. effect for IR ***holog*** . recording)

RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Abedin, K; J Appl Phys 1996, V80, P6561 CAPLUS
- (2) Amodei, J; Appl Phys Lett 1971, V18, P540 CAPLUS
- (3) Bartholomaeus, T; Phys status solidi (a) 1994, V142, PK55 CAPLUS
- (4) Baumer, C; Appl Phys Lett 2003, V82, P2248 CAPLUS
- (5) Baumer, C; J Appl Phys 2003, V93, P3102 CAPLUS
- (6) Beerman, H; Infrared Phys 1975, V15, P225 CAPLUS
- (7) Bhalla, A; Phys status solidi (a) 1980, V58, PK19 CAPLUS
- (8) Buse, K; Appl Phys A 1993, V57, P161
- (9) Buse, K; Appl Phys A 1994, V58, P191
- (10) Buse, K; Ferroelectrics 1993, V141, P197 CAPLUS
- (11) Buse, K; J Opt Soc Amer B 1993, V10, P1266 CAPLUS
- (12) Buse, K; Opt Lett 1994, V19, P260 CAPLUS
- (13) Eggert, H; Opt Lett 2003, V28, P1975 CAPLUS
- (14) Eichler, H; Laser-Induced Dynamic Gratings 1986
- (15) Imbrock, J; J Opt Soc Amer B 1999, V16, P1392 CAPLUS
- (16) Jermann, F; Appl Phys B 1994, V59, P437
- (17) Kogelnik, H; Bell Syst Tech J 1969, V48, P2909
- (18) Kratzig, E; Appl Phys 1978, V15, P133
- (19) Kukhtarev, N; Ferroelectrics 1979, V22, P949 CAPLUS
- (20) Lin, T; Ferroelectrics 1988, V77, P153 CAPLUS
- (21) Micheron, F; Appl Phys Lett 1973, V23, P71 CAPLUS
- (22) Onuki, K; J Opt Soc Amer 1972, V62, P1030 CAPLUS
- (23) Smith, R; J Appl Phys 1971, V42, P2219 CAPLUS
- (24) Vinetskii, V; Ferroelectrics 1978, V18, P81 CAPLUS
- (25) Von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS
- (26) Vormann, H; Solid State Commun 1984, V49, P843 CAPLUS

L12 ANSWER 19 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:257817 CAPLUS <<LOGINID::20061206>>
DN 141:250441
ED Entered STN: 29 Mar 2004
TI Sub-millisecond interband photorefractive in magnesium doped
lithium ***tantarate***

AU Dittrich, Philipp; Montemezzani, Germano; Habu, Masayuki; Matsukura, Makoto; Takekawa, Shunji; Kitamura, Kenji; Gunter, Peter
CS Swiss Federal Institute of Technology, Institute of Quantum Electronics, Nonlinear Optics Laboratory, ETH Honggerberg, Zurich, CH-8093, Switz.
SO Optics Communications (2004), 234(1-6), 131-136
CODEN: OPCOB8; ISSN: 0030-4018
PB Elsevier Science B.V.
DT Journal
LA English
CC 73-2 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

AB Doping of near stoichiometric Li tantarate with Mg leads to enhanced interband photorefractive effects compared with undoped crystals. Studies are performed at the deep UV ***wavelength*** .lambda.UV = 257 nm by Bragg diffraction expts. The formation of 2 grating components with a destructive mutual phase shift is obsd. For UV light intensities larger

than .apprx.500 mW/cm2 the typical time const. for the response of the interband grating is faster than 1 ms. The authors also obsd. quasi-fixing of ***holog*** gratings with UV light and nondestructive, optically switchable readout at the ***wavelength*** .lambda.HeNe = 632.8 nm.

ST magnesium doped ***lithium*** ***tantalate*** submillisecond interband photorefraction; UV visible spectra magnesium doped ***lithium*** ***tantalate*** ; diffraction grating ***holog*** magnesium doped ***lithium*** ***tantalate***

IT Photorefractive effect
(interband; sub-millisecond interband photorefraction in magnesium doped ***lithium*** ***tantalate***)

IT ***Holographic*** diffraction gratings
Optical diffraction
UV and visible spectra
(of magnesium doped ***lithium*** ***tantalate***)

IT 1309-48-4, Magnesium oxide (MgO), properties 7439-95-4, Magnesium, properties 22537-22-0, Magnesium 2+, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(***LiTaO3*** contg.; sub-millisecond interband photorefraction in magnesium doped ***lithium*** ***tantalate***)

IT 12031-66-2, ***Lithium*** ***tantalate*** (***LiTaO3***)
RL: PRP (Properties)
(Mg-doped; sub-millisecond interband photorefraction in magnesium doped ***lithium*** ***tantalate***)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Anon; Photorefractive Materials and Their Applications 1988, V1
- (2) Baumer, C; J Appl Phys 2003, V93, P3102 CAPLUS
- (3) Bernasconi, P; Appl Phys B 1999, V68, P833 CAPLUS
- (4) Bernasconi, P; Ferroelectrics 1999, V223, P373 CAPLUS
- (5) Bryan, D; Appl Phys Lett 1984, V44(9), P847 CAPLUS
- (6) Carrascosa, M; Appl Phys B 2001, V72, P697
- (7) Dittrich, P; J Opt Soc Am B, in press
- (8) Furukawa, Y; J Cryst Growth 1999, V197, P889 CAPLUS
- (9) Furukawa, Y; Jpn J Appl Phys 1999, V38, P1816 CAPLUS
- (10) Imbrock, J; J Opt Soc Am B 1999, V16, P1392 CAPLUS
- (11) Jazbinsek, M; Appl Phys B 2002, V75, P891 CAPLUS
- (12) Kratzig, E; Appl Phys 1978, V15, P133
- (13) Montemezzani, G; Opt Lett 1993, V18, P833
- (14) Montemezzani, G; Phys Rev B 1994, V49, P2484 CAPLUS
- (15) Nitanda, F; Jpn J Appl Phys 1995, V34, P1546 CAPLUS
- (16) Volk, T; Ferroelectrics 1996, V183, P291 CAPLUS
- (17) Xu, J; Opt Lett 2000, V25, P129 CAPLUS
- (18) Zhong, G; 11th International Quantum Electronics Conference 1980, P631

L12 ANSWER 20 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:185038 CAPLUS <<LOGINID::20061206>>

DN 141:78611

ED Entered STN: 08 Mar 2004

TI Deep-ultraviolet interband photorefraction in ***lithium***
tantalate

AU Dittrich, Philipp; Koziarska-Glinka, Bozena; Montemezzani, Germano;
Gunter, Peter; Takekawa, Shunji; Kitamura, Kenji; Furukawa, Yasunori
CS Swiss Federal Institute of Technology, Institute of Quantum Electronics,
Nonlinear Optics Laboratory, ETH Honggerberg, Zurich, CH-8093, Switz.

SO Journal of the Optical Society of America B: Optical Physics (2004),
21(3), 632-639

CODEN: JOBPDE; ISSN: 0740-3224

PB Optical Society of America

DT Journal

LA English

CC 73-2 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)

AB Interband photorefraction in near-stoichiometric ***lithium***
tantalate is demonstrated and investigated at the deep-UV
wavelength .lambda.UV=257 nm. Formation of two distinct grating
components is directly obsd. in depth-resolved measurements. The
diffraction efficiency of a Bragg grating is measured as a function of the
UV light intensity, the grating spacing, and the depth of the readout beam
beneath the crystal surface. Typical time consts. for the interband
effects are of the order of a few tens of milliseconds for UV light

intensities of approx. 100 mW/cm², 3 orders of magnitude faster than the time consts. reported previously for ***lithium*** ***tantalate***

ST UV interband photorefraction ***lithium*** ***tantalate***

IT ***Holography***

Optical diffraction

Photorefractive effect

(deep-UV interband photorefraction in ***lithium***
tantalate)

IT 12031-66-2D, ***Lithium*** ***tantalate*** ***LiTaO₃*** ,
near-stoichiometric

RL: PRP (Properties)

(deep-UV interband photorefraction in ***lithium***
tantalate)

RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Baumer, C; J Appl Phys 2003, V93, P3102 CAPLUS
- (2) Bernasconi, P; Appl Phys B 1999, V68, P833 CAPLUS
- (3) Bernasconi, P; Ferroelectrics 1999, V223, P373 CAPLUS
- (4) Bernasconi, P; Opt Lett 1999, V24, P199
- (5) Bruner, A; Opt Lett 2003, V28, P194 CAPLUS
- (6) Carrascosa, M; Appl Phys B 2001, V72, P697
- (7) Dittrich, P; Opt Commun 2002, V214, P363 CAPLUS
- (8) Dittrich, P; Opt Lett 1999, V24, P1508 CAPLUS
- (9) Fukuda, T; J Cryst Growth 1979, V46, P179 CAPLUS
- (10) Furukawa, Y; J Cryst Growth 1999, V197, P889 CAPLUS
- (11) Furukawa, Y; Jpn J Appl Phys 1999, V38, P1816 CAPLUS
- (12) Gunter, P; Nonlinear Optical Effects and Materials, Vol 72 of Springer Series in Optical Sciences 2000
- (13) Gunter, P; Photorefractive Materials and Their Applications 1988, V1
- (14) Iyi, N; J Solid State Chem 1992, V101, P340 CAPLUS
- (15) Jazbinsek, M; Appl Phys B 2002, V75, P891 CAPLUS
- (16) Kitamura, K; J Cryst Growth 1992, V116, P327 CAPLUS
- (17) Kratzig, E; Appl Phys 1978, V15, P133
- (18) Linde, D; Handbook of Chemistry and Physics 1992-1993
- (19) Luther-Davies, B; J Phys C 1970, V3, PL106 CAPLUS
- (20) Montemezzani, G; Opt Lett 1993, V18, P1144 CAPLUS
- (21) Montemezzani, G; Phys Rev B 1994, V49, P2484 CAPLUS
- (22) Montemezzani, G; Phys Rev E 1997, V55, P1035 CAPLUS
- (23) Nakamura, M; Jpn J Appl Phys 2002, V41, PL465 CAPLUS
- (24) Ryf, R; Opt Lett 2001, V26, P1666 CAPLUS
- (25) Ryf, R; Ph D thesis Swiss Federal Institute of Technology,
<http://e-collection.ethbib.ethz.ch/show?type=diss&nr=13546> 2000
- (26) Xu, J; Opt Lett 2000, V25, P129 CAPLUS

L12 ANSWER 21 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2003:879031 CAPLUS <<LOGINID::20061206>>

DN 140:243491

ED Entered STN: 10 Nov 2003

TI Infrared ***holographic*** recording in ***lithium***
tantalate crystals by means of the pyroelectric effect

AU Eggert, Helge A.; Imbrock, Joerg; Baeumer, Christoph; Hesse, Hartmut;
Kraetzig, Eckhard

CS Fachbereich Physik, Universitaet Osnabrueck, Osnabrueck, 49069, Germany

SO Optics Letters (2003), 28(20), 1975-1977

CODEN: OPLEDP; ISSN: 0146-9592

PB Optical Society of America

DT Journal

LA English

CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

AB IR ***holog*** . recording in a two-step process is demonstrated in
stoichiometric iron-doped ***lithium*** ***tantalate*** crystals.
Through absorption of two intersecting IR pulses ($\lambda = 1064$ nm) a
temp. grating and thus a modulated pyroelec. field build up. Free
electrons, excited by homogeneous light of a shorter ***wavelength***
($\lambda = 532$ nm) drift in this field, and a phase ***hologram*** is
stored that can be read nondestructively. The change in refractive index
depends mainly on the absorption coeff. at the ***wavelength*** of the
recording light and on the intensity of the IR light. The proposed method
may be extended to telecommunication ***wavelengths*** by choice of
suitable dopants.

ST IR ***holog*** recording ***lithium*** ***tantalate*** crystal
 • pyroelec effect
 IT Absorptivity
 Pyroelectricity
 Refractive index
 (IR ***holog*** . recording in iron-doped ***lithium***
 tantalate crystals by pyroelec. effect)
 IT ***Holography***
 (IR; IR ***holog*** . recording in iron-doped ***lithium***
 tantalate crystals by pyroelec. effect)
 IT 12031-66-2, ***Lithium*** ***tantalate*** (***LiTaO3***)
 RL: PEP (Physical, engineering or chemical process); PYP (Physical
 process); PROC (Process)
 (iron-doped; IR ***holog*** . recording in iron-doped
 lithium ***tantalate*** crystals by pyroelec. effect)
 IT 15438-31-0, Iron(2+), processes
 RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical
 process); PYP (Physical process); PROC (Process); USES (Uses)
 (***lithium*** ***tantalate*** doped with; IR ***holog*** .
 recording in iron-doped ***lithium*** ***tantalate*** crystals
 by pyroelec. effect)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE

- (1) Adibi, A; Phys Rev A 2001, V63, P023813
- (2) Baumer, C; Appl Phys Lett 2003, V82, P2248 CAPLUS
- (3) Baumer, C; J Appl Phys 2003, V93, P3102 CAPLUS
- (4) Buse, K; Appl Phys A 1993, V57, P161
- (5) Buse, K; J Opt Soc Am B 1993, V10, P1266 CAPLUS
- (6) Buse, K; Opt Mater 1995, V4, P237 CAPLUS
- (7) Eichler, H; Laser Induced Dynamic Gratings 1986
- (8) Imbrock, J; J Opt Soc Am B 1999, V16, P1392 CAPLUS
- (9) Kogelnik, H; Bell Syst Tech J 1969, V48, P2909
- (10) von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS
- (11) Vormann, H; Solid State Commun 1984, V49, P843 CAPLUS

L12 ANSWER 22 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2003:260910 CAPLUS <<LOGINID::20061206>>

DN 138:278488

ED Entered STN: 04 Apr 2003

TI Pretreatment method for ***hologram*** recording medium

IN Kitamura, Kenji; Takekawa, Shunji; Nakamura, Masaru; Yamaji, Takashi;
 Hatano, Hideki

PA Independent Administrative Institution National Institute for Materials
 Science, Japan

SO U.S. Pat. Appl. Publ., 10 pp.

CODEN: USXXCO

DT Patent

LA English

IC ICM G03H001-04

INCL 430001000; 430002000; 359007000; 430394000

CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US. 2003064294	A1	20030403	US 2002-235853	20020906
	JP 2003084652	A2	20030319	JP 2001-272499	20010907
	JP 3728410	B2	20051221		
PRAI	JP 2001-272499	A	20010907		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2003064294	ICM	G03H001-04
	INCL	430001000; 430002000; 359007000; 430394000
	IPCI	G03H0001-04 [ICM,7]
	IPCR	G03H0001-02 [I,C*]; G03H0001-02 [I,A]; G03H0001-04 [I,C*]; G03H0001-04 [I,A]; G03H0001-16 [I,A]; G03H0001-18 [I,C*]; G03H0001-18 [I,A]; G03H0001-26 [I,C*]; G03H0001-26 [I,A]; G11B0007-00 [I,C*]; G11B0007-0065 [I,A]
	NCL	430/001.000; 359/007.000; 430/002.000; 430/394.000
	ECLA	G03H001/18

JP 2003084652 IPCI G03H0001-04 [ICM,7]; G11B0007-0065 [ICS,7]; G11B0007-00 [ICS,7,C*]
 IPCR G03H0001-02 [I,C*]; G03H0001-02 [I,A]; G03H0001-04 [I,C*]; G03H0001-04 [I,A]; G03H0001-16 [I,A]; G03H0001-18 [I,C*]; G03H0001-18 [I,A]; G03H0001-26 [I,C*]; G03H0001-26 [I,A]; G11B0007-00 [I,C*]; G11B0007-0065 [I,A]

AB Disclosed is a pretreatment method for a ***hologram*** recording medium used in the ***hologram*** recording method in which information signals loaded on signal beam are recorded by injecting coherent signal beam and ref. beam to the ***hologram*** recording medium which is exposed to first light having first ***wavelength*** of UV band or short- ***wavelength*** visible light band in advance in order to generate light-induced absorption, wherein the coherent signal beam and ref. beam each having longer ***wavelength*** than the first ***wavelength***. The pretreatment method comprises subjecting the ***hologram*** recording medium to oxidn. treatment prior to the irradiation of the first light has been completed.

ST pretreatment ***hologram*** recording medium
 IT ***Holographic*** recording materials
 (pretreatment method for ***hologram*** recording medium)
 IT Optical reflectors
 (pretreatment method for ***hologram*** recording medium contg.)
 IT 1313-96-8, Niobium oxide 1314-61-0, Tantalum oxide 12031-63-9, Lithium niobate (LiNbO3) 12031-66-2, ***Lithium*** ***tantalate*** 12057-24-8, Lithium oxide, uses 195144-63-9, Lithium oxide (LiO2)
 RL: TEM (Technical or engineered material use); USES (Uses)
 (pretreatment method for ***hologram*** recording medium contg.)

L12 ANSWER 23 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 2001:248843 CAPLUS <<LOGINID::20061206>>
 DN 135:67935
 ED Entered STN: 09 Apr 2001
 TI Relaxation of light-induced absorption changes in photorefractive ***lithium*** ***tantalate*** crystals
 AU Wevering, S.; Imbrock, J.; Kratzig, E.
 CS Fachbereich Physik, Universitat Osnabruck, Osnabruck, D-49069, Germany
 SO Journal of the Optical Society of America B: Optical Physics (2001), 18(4), 472-478
 CODEN: JOBPDE; ISSN: 0740-3224
 PB Optical Society of America
 DT Journal
 LA English
 CC 73-4 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 69, 74

AB Light-induced absorption changes in Fe-doped Li tantalate crystals are generated with UV nanosecond pulses of a frequency-tripled Nd:YAG laser. The relaxation follows a stretched-exponential function in which the stretching factor is approx. 0.2-0.3. The dependences of the relaxation of the absorption changes on light intensity, temp., and concn. of the Fe dopant are studied. A simple model to account for distance-dependent transitions between populated shallow levels and deep traps is proposed to explain the exptl. data. The consequences of the results presented are discussed with respect to the application of 2- ***color*** ***holog*** for nonvolatile data storage.

ST relaxation absorption photorefractive iron doped ***lithium*** ***tantalate*** crystal
 IT Optical recording
 (nonvolatile ***holog***.; light-induced absorption changes of iron doped ***lithium*** ***tantalate*** crystals in relation to)
 IT Activation energy
 Simulation and Modeling, physicochemical
 (of light-induced absorption changes of iron doped ***lithium*** ***tantalate*** crystals)
 IT Optical absorption
 (relaxation of light-induced absorption changes in photorefractive ***lithium*** ***tantalate*** crystals)
 IT Quantum transition
 (relaxation; relaxation of light-induced absorption changes in photorefractive ***lithium*** ***tantalate*** crystals)
 IT 12031-66-2, ***Lithium*** ***tantalate***

RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (relaxation of light-induced absorption changes in photorefractive
 lithium ***tantarate*** crystals)

IT 7439-89-6, Iron, uses
 RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical
 process); PROC (Process); USES (Uses)
 (relaxation of light-induced absorption changes in photorefractive
 lithium ***tantarate*** crystals doped with)

RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Amodei, J; Appl Phys Lett 1971, V18, P540 CAPLUS
- (2) Bai, Y; Opt Lett 1997, V22, P334 CAPLUS
- (3) Bai, Y; Phys Rev Lett 1997, V78, P2944 CAPLUS
- (4) Berben, D; J Appl Phys 2000, V87, P1034 CAPLUS
- (5) Buse, K; Appl Phys A 1994, V58, P191
- (6) Buse, K; Ferroelectrics 1993, V141, P197 CAPLUS
- (7) Chen, F; Appl Phys Lett 1968, V13, P223 CAPLUS
- (8) Forster, T; Z Naturforsch 1949, V4a, P321 CAPLUS
- (9) Glass, A; Appl Phys Lett 1974, V25, P233 CAPLUS
- (10) Guenther, H; Appl Opt 1998, V37, P7611 CAPLUS
- (11) Guenther, H; Opt Lett 1997, V22, P1305 CAPLUS
- (12) Hesselink, L; Science 1998, V282, P1089 CAPLUS
- (13) Imbrock, J; J Opt Soc Am B 1999, V16, P1392 CAPLUS
- (14) Imbrock, J; Opt Lett 1999, V24, P1302 CAPLUS
- (15) Jermann, F; J Opt Soc Am B 1993, V10, P2085 CAPLUS
- (16) Kratzig, E; Ferroelectrics 1980, V27, P241
- (17) Kurz, H; Appl Phys 1977, V12, P355 CAPLUS
- (18) Lande, D; Opt Lett 1997, V22, P1722 CAPLUS
- (19) Paraschis, L; J Opt Soc Am B 1997, V14, P2670 CAPLUS
- (20) Simon, M; Opt Mater 1994, V3, P243 CAPLUS
- (21) von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS

L12 ANSWER 24 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1999:777876 CAPLUS <<LOGINID::20061206>>

DN 132:158117

ED Entered STN: 09 Dec 1999

TI Photorefractive waveguides

AU Kip, Detlef; Hukriede, Joerg; Wesner, Monika; Kratzig, Eckhard

CS Phys. Dep., Univ. Osnabrueck, Osnabrueck, Germany

SO Proceedings of SPIE-The International Society for Optical Engineering
 (1999), 3801(Photorefractive Fiber and Crystal Devices: Materials, Optical
 Properties, and Applications V), 9-23
 CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal; General Review

LA English

CC 73-0 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)

AB A review with 64 refs. Photorefractive effects in optical waveguides link
 2 interesting research areas: First, light-induced refractive index
 changes in optical materials, and 2nd waveguide structures that are the
 basis for integrated optical devices. In the last two decades several
 devices based on photorefractive waveguides were proposed, and static and
 dynamic elements were exptl. demonstrated. Permanent refractive index
 gratings in waveguide devices are of considerable interest for integrated
 waveguide lasers or ***wavelength*** multiplexers that make use of the
 high spectral selectivity of ***holog*** filters. Thermal fixing of
 holog gratings was studied in channel LiNbO3:Ti:Fe waveguides. A
 wavelength filter for IR light at apprx.1.55 .mu.m was fabricated
 with a peak reflectivity >99%, a bandwidth of 0.1 nm and nearly
 polarization independent properties. The authors demonstrated the
 formation of photorefractive spatial solitons in a planar Sr-Ba NbO3
 waveguide. In such a geometry, (1 + 1)-dimensional solitons are formed in
 a true (1 + 1)- dimensional medium, getting rid of the transverse
 instability that is inherent to soliton propagation in bulk crystals.
 Coherent collisions between 2 photorefractive solitons result in fusion,
 repelling, energy exchange, or the creation of a 3rd soliton.

ST review photorefractive waveguide refractive index ***holog*** filter
 grating

IT Optical filters

IT (***holog*** .; permanent refractive index gratings as)

IT Photorefractive effect

Refractive index

(light-induced refractive indexes in photorefractive optical

*waveguides)

IT Optical waveguides

(photorefractive; light-induced refractive indexes in)

IT Solitons

(photorefractive; planar waveguides in relation to)

IT ***Holographic*** diffraction gratings

(thermally fixed; planar waveguides in relation to)

IT 12030-85-2, Potassium niobate (KNbO3) 12031-63-9, Lithium niobate

(LiNbO3) 12031-66-2, ***Lithium*** ***tantalate*** (

LiTaO3) 12047-27-7, Barium titanate (BaTiO3), uses

108706-74-7, Barium niobium strontium oxide ((Ba,Sr)0.25-0.75Nb2O6)

RL: DEV (Device component use); NUU (Other use, unclassified); USES (Uses)

(photorefractive optical waveguides contg.)

RE.CNT 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; Topics Appl Phys 1988, V61 and 62
- (2) Ashkin, A; Appl Phys Lett 1966, V9, P72 CAPLUS
- (3) Atuchin, V; Sov J Quant Electron 1984, V14, P671
- (4) Bobrov, Y; phys stat sol a 1991, V123, P317 CAPLUS
- (5) Bremer, T; Ferroelectrics Lett 1988, V9, P11 CAPLUS
- (6) Brulisauer, S; Electron Lett 1995, V31, P312 CAPLUS
- (7) Buse, K; Appl Phys B 1997, V64, P391 CAPLUS
- (8) Buse, K; Phys Rev B 1997, V56, P1225 CAPLUS
- (9) Cabrera, J; Adv Phys 1996, V45, P349 CAPLUS
- (10) Destefanis, G; Appl Phys Lett 1978, V32, P5
- (11) Eknayan, O; Appl Phys Lett 1997, V71, P3051 CAPLUS
- (12) Fedorov, V; Ferroelectrics 1993, V138, P23 CAPLUS
- (13) Fluck, D; J Appl Phys 1992, V72, P1671 CAPLUS
- (14) Fries, S; phys stat sol a 1988, V108, P449 CAPLUS
- (15) Fujiwara, T; Opt Lett 1993, V18, P346 CAPLUS
- (16) Gericke, V; Appl Phys B 1987, V44, P155
- (17) Glazov, G; Int J Nonl Opt Phys 1993, V2, P71 CAPLUS
- (18) Goring, R; Appl Phys A 1992, V55, P97
- (19) Hammer, J; Appl Phys Lett 1974, V24, P545 CAPLUS
- (20) Hukriede, J; Appl Phys B 1998, V66, P333 CAPLUS
- (21) Hukriede, J; Appl Phys B in press V68
- (22) Hukriede, J; Opt Lett 1998, V23, P1405 CAPLUS
- (23) Iturbe-Castillo, M; Appl Phys Lett 1994, V64, P408
- (24) Jackel, J; J Appl Phys 1984, V55, P269 CAPLUS
- (25) Jermann, F; J Opt Soc Am B 1993, V10, P2085 CAPLUS
- (26) Kazansky, P; IEEE J Quant Electron 1989, VQE-25, P736
- (27) Kip, D; Appl Phys B 1997, V65, P511 CAPLUS
- (28) Kip, D; J Opt Soc Am B 1994, V11, P1737
- (29) Kip, D; Opt Commun 1993, V95, P33 CAPLUS
- (30) Kip, D; Opt Lett 1992, V17, P1563 CAPLUS
- (31) Kip, D; Opt Lett 1995, V20, P1139 CAPLUS
- (32) Kip, D; Opt Lett 1995, V20, P1256 CAPLUS
- (33) Kip, D; Opt Lett 1998, V23, P921 CAPLUS
- (34) Kip, D; Technical Digest of the Topical Meeting on Photorefractive Materials, Effects, and Devices 1997, P442
- (35) Kip, D; phys stat sol a 1993, V139, P241 CAPLUS
- (36) Kondo, Y; Appl Opt 1994, V33, P3348 CAPLUS
- (37) Kondo, Y; Jpn J Appl Phys 1995, V34, PL365 CAPLUS
- (38) Kostritskii, S; Appl Phys B 1997, V65, P517 CAPLUS
- (39) Kostritskii, S; Technical Digest of the Topical Meeting on Photorefractive Materials, Effects, and Devices 1997, P216
- (40) Krolikowski, W; Opt Lett 1997, V22, P369 CAPLUS
- (41) Minier, V; IEEE Phot Technol Lett 1992, V4, P1115
- (42) Moretti, P; Ferroelectrics 1992, V128, P13 CAPLUS
- (43) Moretti, P; phys stat sol a 1990, V117, PK85
- (44) Novikov, A; J Opt Soc Am B 1991, V8, P1298 CAPLUS
- (45) Novikov, A; Sov Phys Tech Phys 1988, V33, P969
- (46) Pliska, T; J Opt Soc Am B 1998, V15, P628 CAPLUS
- (47) Rickermann, F; phys stat sol a 1995, V150, P763 CAPLUS
- (48) Robertson, E; Opt Lett 1996, V21, P641 CAPLUS
- (49) Rupp, R; Appl Phys A 1992, V55, P2
- (50) Savatinova, I; J Light Technol 1996, V14, P403 CAPLUS
- (51) Schmidt, R; Appl Phys Lett 1974, V25, P458 CAPLUS
- (52) Segev, M; Phys Rev Lett 1992, V68, P923 CAPLUS
- (53) Shandarov, E; Opt and Spectrosc 1990, V69, P824

- (54) Shih, M; Opt Lett 1996, V21, P324
- (55) Spillman, W; Opt Lett 1983, V8, P497 CAPLUS
- (56) Steinberg, S; Opt Lett 1995, V20, P683 CAPLUS
- (57) Suchoski, P; Opt Lett 1988, V13, P1050 CAPLUS
- (58) Valley, G; Phys Rev A 1994, V50, PR4457 CAPLUS
- (59) Wood, V; J Appl Phys 1975, V46, P1214 CAPLUS
- (60) Wood, V; Topics Appl Phys 1988, V62
- (61) Yamada, A; J Appl Phys 1994, V76, P1776 CAPLUS
- (62) Youden, K; Opt Lett 1992, V17, P1509 CAPLUS
- (63) Zha, M; Opt Lett 1993, V18, P577 CAPLUS
- (64) Zolotov, E; Sov Tech Phys Lett 1981, V7, P397

L12 ANSWER 25 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1999:692803 CAPLUS <<LOGINID::20061206>>

DN 132:16800

ED Entered STN: 31 Oct 1999

TI Enhancement of the photorefractive effect by Er doping in ***LiTaO3***

AU Kostritskii, S. M.; Maring, D. B.; Tavlykaev, R. F.; Ramaswamy, R. V.

CS Kemerovo State University, Kemerovo, 650043, Russia

SO OSA Trends in Optics and Photonics Series (1999), 27 (Advances in Photorefractive Materials, Effects, and Devices), 72-79

CODEN: OTOPFZ; ISSN: 1094-5695

PB Optical Society of America

DT Journal

LA English

CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74

AB Er doping increases significantly the photorefractive effect in ***LiTaO3***. The mechanisms of increased photorefractivity attributed to Er doping are identified based on studies of Raman and fluorescence spectra. Potential applications toward high-efficiency nonvolatile ***holog*** storage devices with two- ***color*** recording are discussed.

ST photorefractive effect erbium doping ***lithium*** ***tantalate***

IT Fluorescence

(anti-Stokes; enhancement of photorefractive effect by Er doping in ***LiTaO3***)

IT Refractive index

(change of; enhancement of photorefractive effect by Er doping in ***LiTaO3***)

IT Photorefractive effect

Photorefractive materials

(enhancement of photorefractive effect by Er doping in ***LiTaO3***)

IT ***Holography***

(enhancement of photorefractive effect by Er doping in ***LiTaO3*** in relation to)

IT Diffusion

(in-diffusion; enhancement of photorefractive effect by Er doping in ***LiTaO3*** prep'd. by)

IT 7440-52-0, Erbium, properties

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)

(enhancement of photorefractive effect by Er doping in ***LiTaO3***)

IT 12031-66-2, Lithium tantalum oxide (***LiTaO3***)

RL: PRP (Properties)

(enhancement of photorefractive effect by Er doping in ***LiTaO3***)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Amin, J; Appl Phys Lett 1996, V69, P3785 CAPLUS
- (2) Baumann, I; IEEE J Sel Top Quantum Electron 1996, V2, P355 CAPLUS
- (3) Bordui, P; J Appl Phys 1995, V78, P4647 CAPLUS
- (4) Caccavale, F; J Lightwave Technol 1997, V15, P2294 CAPLUS
- (5) Fujiwara, T; Opt Lett 1993, V18, P346 CAPLUS
- (6) Gill, D; Phys Rev B 1996, V53, P2334 CAPLUS
- (7) Glass, A; Laser Induced damage in Optical Materials 1972, P15 CAPLUS
- (8) Gopalan, V; J Appl Phys 1996, V80, P6099 CAPLUS
- (9) Guenter, H; Opt Lett 1997, V22, P1305
- (10) Harvey, G; IEEE J Quantum Electron 1986, V22, P939
- (11) Huang, C; IEEE J Sel Top Quantum Electron 1996, V2, P367 CAPLUS

- (12) Jermann, F; J Opt Soc Am B 1995, V12, P2066 CAPLUS
- (13) Kostritskii, S; Appl Phys B 1997, V65, P517 CAPLUS
- (14) Kostritskii, S; Appl Phys B 1997, V65, P527 CAPLUS
- (15) Kostritskii, S; J Opt Soc Am B 1994, V11, P1674 CAPLUS
- (16) Lande, D; Opt Lett 1998, V23, P1399 CAPLUS
- (17) Ramabadran, U; Appl Phys Lett 1991, V58, P672 CAPLUS
- (18) Schirmer, O; J Phys Chem Solids 1991, V52, P185 CAPLUS

L12 ANSWER 26 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1999:546319 CAPLUS <<LOGINID::20061206>>

DN 131:264490

ED Entered STN: 30 Aug 1999

TI Nonvolatile ***holographic*** storage in photorefractive
lithium ***tantalate*** crystals with laser pulses

AU Imbrock, J.; Wevering, S.; Buse, K.; Kratzig, E.

CS Universitat Osnabruck, Fachbereich Physik, Osnabruck, D-49069, Germany

SO Journal of the Optical Society of America B: Optical Physics (1999),
16(9), 1392-1397

CODEN: JOBPDE; ISSN: 0740-3224

PB Optical Society of America

DT Journal

LA English

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)

Section cross-reference(s): 74

AB Nonvolatile ***holograms*** are recorded in photorefractive
LiTaO3 :Fe with laser pulses using two-step excitation. UV laser
pulses (***wavelength*** .lambda.=355 nm) yield a strong increase of
absorption (.ltoreq.600 m-1 at .lambda.=633 nm) and sensitize the crystals
for subsequent IR (.lambda.=1064 nm) ***holog*** recording.
Refractive-index changes of .ltoreq.1.6 .times. 10-4 are achieved for
intensities of the IR light of 1011 W/m2. The satn. values are
proportional to the concn. of Fe3+ ions. Nondestructive readout with IR
light is possible, and the ***holograms*** remain erasable for UV
light. Typical time consts. of recording and erasure are 0.5 .mu.s for
intensities of the UV light of 1011 W/m2. The results can be explained
with a two-level charge-transport model.

ST ***holog*** optical storage photorefractive ***lithium***
tantalate

IT ***Holography***
Photoinduced optical absorption
Photorefractive effect
Photorefractive gratings
Shallow traps

(***holog*** . storage in photorefractive ***lithium***
tantalate)

IT Memory effect
(optical; ***holog*** . storage in photorefractive ***lithium***
tantalate)

IT Laser radiation
(pulsed, nanosecond; ***holog*** . storage in photorefractive
lithium ***tantalate***)

IT IR laser radiation
(recording/readout pulses; ***holog*** . storage in photorefractive
lithium ***tantalate***)

IT UV laser radiation
(sensitizing/erasing pulses; ***holog*** . storage in
photorefractive ***lithium*** ***tantalate***)

IT 7439-89-6, Iron, uses 15438-31-0, Iron(2+), uses 20074-52-6, Iron(3+),
uses
RL: MOA (Modifier or additive use); USES (Uses)
(dopant; ***holog*** . storage in photorefractive ***lithium***
tantalate)

IT 12031-66-2, Lithium tantalum oxide (***LiTaO3***)
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(***holog*** . storage in photorefractive ***lithium***
tantalate)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Anon; Landolt-Bornstein, Ferro- und Antiferromagnetische Substanzen 1975,
VIII

- (2) Anon; Photorefractive Materials and Their Applications I and II Topics in Applied Physics 1988, V61
- (3) Anon; Photorefractive Materials and Their Applications I and II Topics in Applied Physics 1989, V62
- (4) Baquedano, J; J Opt Soc Am B 1987, V4, P309 CAPLUS
- (5) Breer, S; Electron Lett 1998, V34, P2418
- (6) Buse, K; Appl Phys A: Solids Surf 1994, V58, P191
- (7) Buse, K; Nature (London) 1998, V393, P665 CAPLUS
- (8) Hesselink, L; Science 1998, V282, P1089 CAPLUS
- (9) Jermann, F; J Opt Soc Am B 1993, V10, P2085 CAPLUS
- (10) Kappers, L; Phys Rev B 1985, V31, P6792 CAPLUS
- (11) Kratzig, E; Appl Phys 1978, V15, P133
- (12) Kratzig, E; Ferroelectrics 1980, V27, P241
- (13) Kukhtarev, N; Sov Tech Phys Lett 1976, V2, P438
- (14) Kurz, H; Appl Phys 1977, V12, P355 CAPLUS
- (15) Peterson, G; Appl Phys Lett 1971, V19, P130 CAPLUS
- (16) Phillips, W; J Electron Mater 1974, V3, P601 CAPLUS
- (17) von der Linde, D; Appl Phys Lett 1974, V25, P155 CAPLUS
- (18) Vormann, H; Solid State Commun 1984, V49, P843 CAPLUS

L12 ANSWER 27 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1999:265196 CAPLUS <<LOGINID::20061206>>

DN 131:37701

ED Entered STN: 30 Apr 1999

TI Stoichiometric ***LiTaO3*** for dynamic ***holography*** in near UV ***wavelength*** range

AU Furukawa, Yasunori; Kitamura, Kenji; Niwa, Kazuo; Hatano, Hideki; Bernasconi, Pietro; Montemezzani, Germano; Gunter, Peter

CS National Institute for Research in Inorganic Materials, Tsukuba, 305-0044, Japan

SO Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers (1999), 38(3B), 1816-1819
CODEN: JAPNDE; ISSN: 0021-4922

PB Japanese Journal of Applied Physics

DT Journal

LA English

CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other Repographic Processes)

AB ***LiTaO3*** single crystals with near-stoichiometric compn. are grown using a double crucible Czochralski method equipped with an automatic powder supply system. Their photorefractive properties are compared with those of ***LiTaO3*** crystals grown from the congruent compn. melt. Two beam coupling expts. show that nearly stoichiometric ***LiTaO3*** crystals exhibit considerably higher photorefractive gain, speed and sensitivity than conventional congruent crystals. Due to the relatively large photocond. obsd. at near UV ***wavelengths***, stoichiometric crystals are further characterized by small photogalvanic fields, making them very attractive for dynamic ***holog*** in this ***wavelength*** range.

ST stoichiometric ***lithium*** ***tantalate*** dynamic ***holog*** UV

IT ***Holography***

(dynamic, near UV; stoichiometric ***lithium*** ***tantalate*** for)

IT 12031-66-2, ***Lithium*** ***tantalate***

RL: TEM (Technical or engineered material use); USES (Uses)
(for dynamic ***holog*** in near UV)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; Photorefractive Materials and Their Applications 1 1988, V1
- (2) Bernal, M; Appl Opt 1996, V35, P2360 CAPLUS
- (3) Bernasconi, P; to be published in Ferroelectrics
- (4) Furukawa, Y; Opt Lett 1997, V22, P501 CAPLUS
- (5) Furukawa, Y; to be published in J Cryst Growth
- (6) Glass, A; Appl Phys Lett 1974, V25, P233 CAPLUS
- (7) Gu, C; J Appl Phys 1991, V69, P1167 CAPLUS
- (8) Heanue, J; Science 1994, V265, P749
- (9) Iyi, N; J Solid State Chem 1992, V101, P340 CAPLUS
- (10) Kitamura, K; Ferroelectrics 1997, V202, P21 CAPLUS
- (11) Kitamura, K; J Appl Phys 1997, V82, P1006 CAPLUS
- (12) Kratzig, E; Appl Phys 1978, V15, P133
- (13) Kukhtarev, N; Ferroelectrics 1979, V22, P949 CAPLUS

- (14) Lemer, P; J Cryst Growth 1968, V3/4, P231
- (15) Miyazawa, S; J Cryst Growth 1971, V10, P276 CAPLUS
- (16) Montemezzani, G; Phys Rev Lett 1997, V79, P3403 CAPLUS
- (17) O'Bryan, H; J Am Ceram Soc 1985, V68, P493 CAPLUS
- (18) Paraschis, L; J Opt Soc Am 1997, V14, P2670 CAPLUS

L12 ANSWER 28 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1997:277073 CAPLUS <<LOGINID::20061206>>

DN 126:300032

ED Entered STN: 30 Apr 1997

TI Light-induced charge transport processes in photorefractive crystals. Part 2. Materials

AU Buse, K.

CS Fachbereich Physik, Universitat Osnabrueck, Osnabrueck, D-49069, Germany

SO Applied Physics B: Lasers and Optics (1997), 64(4), 391-407

CODEN: APBOEM; ISSN: 0946-2171

PB Springer

DT Journal; General Review

LA English

CC 76-0 (Electric Phenomena)

Section cross-reference(s): 73, 74

AB A review with 254 refs. on the charge transport processes in different photorefractive oxide crystals is given and consequences for applications are outlined. The light-induced charge transport processes in LiNbO₃, ***LiTaO₃***, BaTiO₃, Ba_{1-x}Sr_xTiO₃ (0 .ltoreq. x .ltoreq. 1, BST), Ba_{1-x}Ca_xTiO₃ (0 .ltoreq. x .ltoreq. 1, BCT), KNbO₃, KTa_{1-x}Nb_xO₃ (0 .ltoreq. x .ltoreq. 1, KTN), Sr_{1-x}Ba_xNbO₆ (0 .ltoreq. x .ltoreq. 1, SBN) and Bi₁₂(Si,Ti,Ge)O₂₀ (BSO, BTO, BGO) are discussed. Utilizing the knowledge on the charge transport processes, consequences for applications are deduced; improved techniques for nondestructive readout of

holograms with light of the recording ***wavelength*** are described.

ST review light charge transport photorefractive material; oxide photorefractive charge transport ***holog*** review

IT Photorefractive materials

(light-induced charge transport processes in)

IT Oxides (inorganic), properties

RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(light-induced charge transport processes in photorefractive)

IT Electric transport properties

Photoconductivity

(light-induced charge transport processes in photorefractive materials)

IT ***Holographic*** diffraction gratings

(light-induced charge transport processes in photorefractive materials utilized for)

IT Laser radiation

(pulsed; light-induced charge transport processes in photorefractive materials utilized for)

L12 ANSWER 29 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1994:19071 CAPLUS <<LOGINID::20061206>>

DN 120:19071

ED Entered STN: 08 Jan 1994

TI Imaging of coherent phonons

AU Wesner, J.; Wuerz, K. U.; Hillmann, K.; Grill, W.

CS Phys. Inst., Johann Wolfgang Goethe-Univ., Frankfurt, W-6000, Germany

SO Springer Series in Solid-State Sciences (1993), 112(Phonon Scattering in Condensed Matter VII), 68-70

CODEN: SSSSDV; ISSN: 0171-1873

DT Journal

LA English

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 75

AB As a new method of phonon-imaging in crystals the authors introduce a ***holog*** detection scheme using monochromatic ultrasonic waves of frequencies up to 1 GHz. A phase-sensitive scanning acoustic microscope (PSAM) has been developed (details to be published elsewhere) with a lateral resoln. in the range of 1 .mu.m and a phase resoln. better than a thousandth of a ***wavelength***. Detecting phase and amplitude simultaneously, the PSAM shows the first acoustic ***holograms*** of

anisotropic crystals and allows the investigation of acoustic anisotropy at room temps.
 ST acoustic ***holog*** coherent phonon imaging; anisotropic crystal
 holog acoustic phonon imaging
 IT Phonon
 (imaging of coherent, ***holog*** . detection in)
 IT Photoacoustic effect
 (in anisotropic crystals, ***holog*** . in)
 IT Sound and Ultrasound
 (propagation in anisotropic crystals, in imaging of coherent phonons)
 IT ***Holography***
 (acoustic, of anisotropic crystals)
 IT Crystal structure types
 (anisotropic, acoustic ***holog*** . of, for imaging of coherent phonons)
 IT 1303-00-0, Gallium arsenide, uses 12031-66-2, ***Lithium***
 tantalate (***litao3***)
 RL: USES (Uses)
 (acoustic ***holograms*** of anisotropic crystals of)

L12 ANSWER 30 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 1983:43264 CAPLUS <<LOGINID::20061206>>
 DN 98:43264
 ED Entered STN: 12 May 1984
 TI Photorefraction and anisotropic light scattering in lithium niobate(V)-iron crystals
 AU Augustov, P. A.; Reinfelde, M.; Shvarts, K. K.
 CS Inst. Phys., Salaspils, SU-229021, USSR
 SO Applied Physics A: Solids and Surfaces (1982), A29(3), 169-72
 CODEN: APSFDB; ISSN: 0721-7250
 DT Journal
 LA English
 CC 73-2 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 74
 AB By ***holog*** . recording in LiNbO3-Fe and ***LiTaO3*** -Fe crystals, a new light scattering effect was obsd. with an optical indicatrix along the optical axis. The kinetics of the light scattering depends on the intensity, ***wavelength*** , as well as the polarization of the incident light. A ***holog*** . vol. grating is created by the interference of an incident light and light scattered by crystal inhomogeneities.
 ST ***holog*** recording anisotropic light scattering; lithium niobate iron anisotropic scattering; ***tantalate*** ***lithium*** iron anisotropic scattering
 IT Interference
 (between incident light and scattered light in iron-doped ***lithium*** niobate or ***lithium*** ***tantalate***)
 IT Diffraction gratings
 (***holog*** . vol., by interference of incident light from scattered light in crystals)
 IT Optical anisotropy
 (in light scattering by iron-doped ***lithium*** niobate and ***lithium*** ***tantalate***)
 IT Laser radiation
 Light
 (scattering anisotropy of, in iron-doped ***lithium*** niobate and ***lithium*** ***tantalate***)
 IT 7439-89-6, properties
 RL: PRP (Properties)
 (photorefraction and anisotropic light scattering by ***lithium*** niobate or ***lithium*** ***tantalate*** contg.)
 IT 12031-63-9 12031-66-2
 RL: USES (Uses)
 (photorefraction and anisotropic light scattering in iron-contg.)

L12 ANSWER 31 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN
 AN 1975:178047 CAPLUS <<LOGINID::20061206>>
 DN 82:178047
 ED Entered STN: 12 May 1984
 TI ***Holographic*** formation of gratings in optical waveguiding layers
 AU Wood, Van E.; Hartman, N. F.; Verber, C. M.; Kenan, R. P.

CS Battelle Mem. Inst., Columbus, OH, USA
SO Journal of Applied Physics (1975), 46(3), 1214-15
CODEN: JAPIAU; ISSN: 0021-8979

DT Journal
LA English
CC 73-8 (Spectra by Absorption, Emission, Reflection, ~~of~~ Magnetic Resonance, and Other Optical Properties)
Section cross-reference(s): 74

AB Thick phase gratings were formed photorefractively (through optically induced changes) in planar optical waveguides by intersecting short-
wavelength coherent guided beams. In multimode guides formed by effusing Li from LiNbO₃, max. diffraction efficiencies were 52% at the 0.488-.mu.m write ***wavelength*** and 3.1% at 0.633 .mu.m. In a 2-mode LiTa_{1-x}Nb_xO₃ guide formed by diffusing Nb into ***LiTaO₃*** at 1100.degree., diffraction efficiencies were 65% and 28% at the same 2 ***wavelengths***, resp.

ST diffraction grating ***holography***; waveguide optical grating; niobate lithium diffraction grating; ***tantalate*** ***lithium*** diffraction grating niobium

IT Waveguides
(diffraction grating formation in optical, ***holog***.)

IT ***Holography***
(diffraction grating formation in waveguiding layers by)

IT Diffraction gratings
(***holog***. formed, in optical waveguides)

IT 7439-93-2, uses and miscellaneous
RL: USES (Uses)
(diffraction gratings from lithium niobate contg.)

IT 7440-03-1, uses and miscellaneous
RL: USES (Uses)
(diffraction gratings from ***lithium*** ***tantalate*** contg., ***holog***. formed)

IT 12031-63-9
RL: USES (Uses)
(diffraction gratings from lithium-contg.)

IT 12031-66-2
RL: PRP (Properties)
(diffraction gratings from niobium-contg.)

L12 ANSWER 32 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1974:456583 CAPLUS <<LOGINID::20061206>>
DN 81:56583
ED Entered STN: 12 May 1984

TI Sensitivity and fatigue of ***lithium*** ***tantalate*** (V) for ***holographic*** recording
AU Spinhirne, J. M.; Estle, T. L.
CS Phys. Dep., Rice Univ., Houston, TX, USA
SO Applied Physics Letters (1974), 25(1), 38-9
CODEN: APPLAB; ISSN: 0003-6951

DT Journal
LA English
CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic Processes)
Section cross-reference(s): 73

AB The sensitivity of ***LiTaO₃*** crystals to ***hologram*** formation was obsd. to vary with impurity concn. For a writing ***wavelength*** of 488.0 nm and power d. of 1.1 W/cm² the sensitivity varied from a value comparable to the most sensitive doped LiNbO₃ for an impure crystal to a value more than 5 orders of magnitude smaller for a purer crystal. Fatigue effects were obsd. upon write-erase cycling. These effects were dependent upon writing and erasure polarization and power d. and could be minimized by proper choice of optical parameters.

ST sensitivity ***lithium*** ***tantalate*** ***holog***

IT ***Holography***
(***lithium*** ***tantalate*** crystals for, sensitivity and fatigue of)

IT 12031-66-2
RL: USES (Uses)
(***holog***. recording material, sensitivity and fatigue of)

L12 ANSWER 33 OF 33 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1973:77876 CAPLUS <<LOGINID::20061206>>
DN 78:77876

ED Entered STN: 12 May 1984
 TI Optical index damage in electrooptic crystals
 AU Glass, A. M.; Peterson, George Earl; Negran, T. J.
 CS Bell Lab., Murray Hill, NJ, USA
 SO Nat. Bur. Stand. (U. S.), Spec. Publ. (1972), No. 372, 15-26
 CODEN: XNBSAV
 DT Report
 LA English
 CC 73-6 (Spectra by Absorption, Emission, Reflection, or Magnetic Resonance, and Other Optical Properties)
 Section cross-reference(s): 70, 74
 AB Optical and EPR studies of LiNbO3 and ***LiTaO3*** crystals showed that Fe2+ impurity ions in nominally pure material were responsible for the laser-induced n damage. The effects of stoichiometry variation, heat treatment, impurity and ***color*** -center content, x-irradn., and the kinetics of the n-damage process were accounted for by Fe2+-Fe3+ reactions. Careful control of crystal growth and stabilization of the Fe3+ impurity state in these crystals gave as much as 4 orders of magnitude of damage resistance. Laser-induced changes in n were used in an erasable pure-phase ***holographic*** memory, they are proposed for distributed feedback systems and in integrated optics.
 ST laser damage electrooptic crystal; lithium niobate laser damage; ***tantalate*** ***lithium*** laser damage; refraction laser damage; ***holography*** laser damage; optics integrated laser damage
 IT ***Holography***
 (erasable pure-phase memory, laser-induced refractive index changes of electrooptic crystals in relation to)
 IT Memory effect, chemical and physical
 (***holographic*** erasable pure-phase, laser-induced refractive index damage to electrooptic crystals in relation to)
 IT ***Color*** centers
 (in electrooptic crystals, laser-induced refractive index damage in relation to)
 IT Optics
 (integrated, laser-induced refractive index damage to electrooptic crystals in relation to)
 IT Refractive index and Refraction
 (of electrooptic crystals after irradiation by laser beam, changes in)
 IT Electron spin resonance
 Optical absorption
 (of electrooptic crystals contg. iron impurities, laser-induced refractive index damage in relation to)
 IT Valence
 (of iron, in electrooptic crystals, refractive index damage by laser irradiation in relation to)
 IT Laser radiation, chemical and physical effects
 (refractive index damage of electrooptic crystals contg. iron impurities by)
 IT X-ray, chemical and physical effects
 (refractive index damage to electrooptic crystals irradiated by)
 IT 7439-89-6, properties
 RL: PRP (Properties)
 (refractive index damage by laser irradn. in electrooptic crystals contg.)
 IT 12031-63-9 12031-66-2
 RL: USES (Uses)
 (refractive index damage by laser irradn. in iron-contg.)

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FILE 'INSPEC, CAPLUS' ENTERED AT 08:00:40 ON 06 DEC 2006

L1 7828 S (LITHIUM(5A) TANTALATE) OR LITAO3
 L2 508 S L1 AND STOICHIOMET?
 L3 7 S L2 AND GATING
 L4 1 S L2 AND GATED

L5 8 S L3 OR L4
L6 178 S L1 AND HOLOGRA?
L7 1 S L6 AND STABLE
L8 0 S L6 AND VOLITILE
L9 2 S L6 AND VOLATILE
L10 42 S L6 AND (WAVELENGTH OR COLOR)
L11 3 S L7 OR L9
L12 33 S L10 NOT (L11 OR L5)

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